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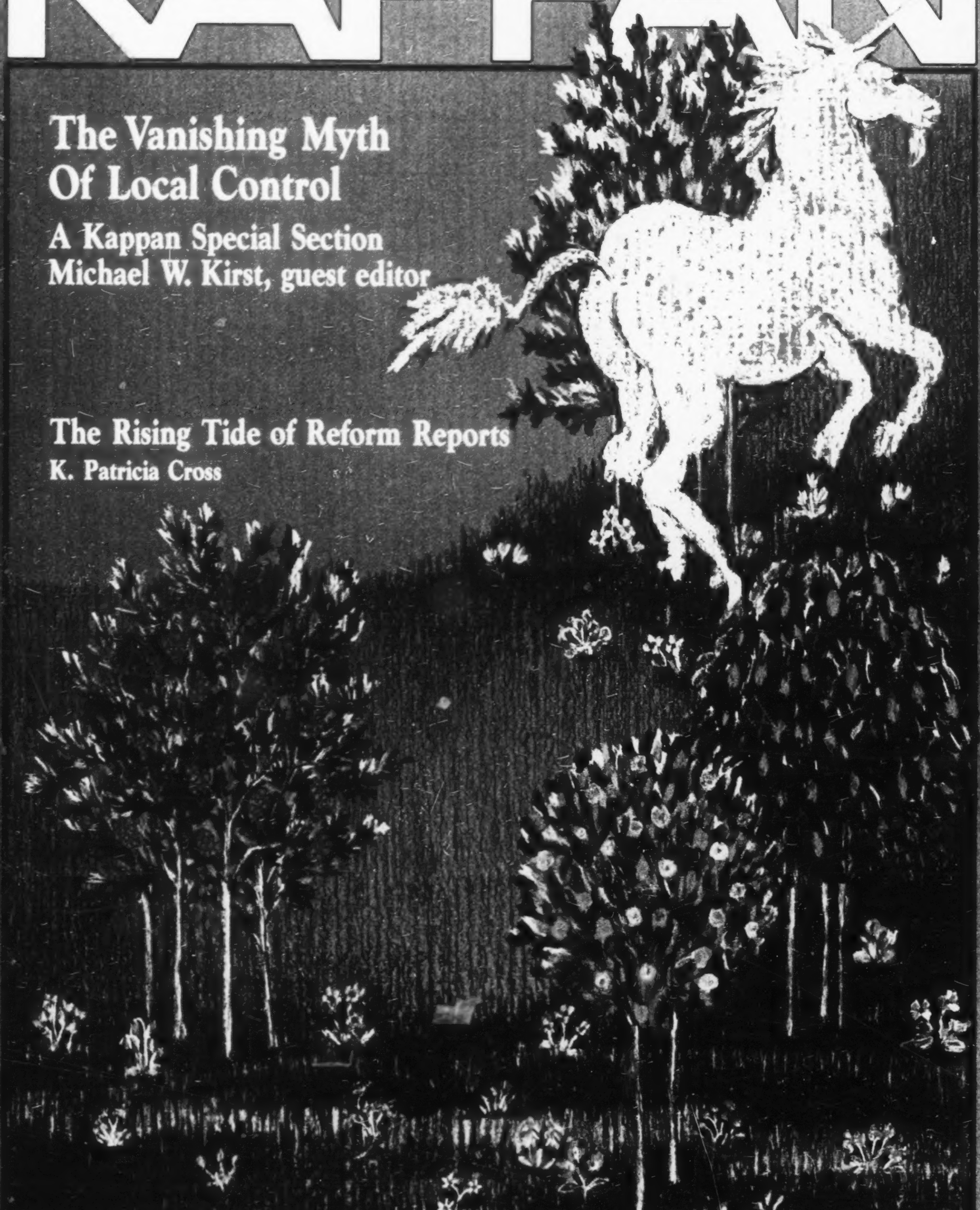
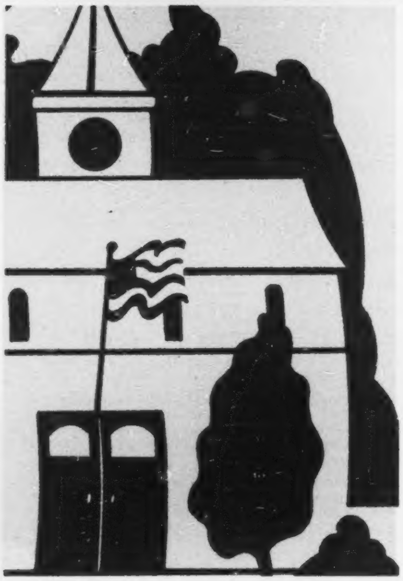


The Vanishing Myth Of Local Control

A Kappan Special Section
Michael W. Kirst, guest editor

The Rising Tide of Reform Reports

K. Patricia Cross



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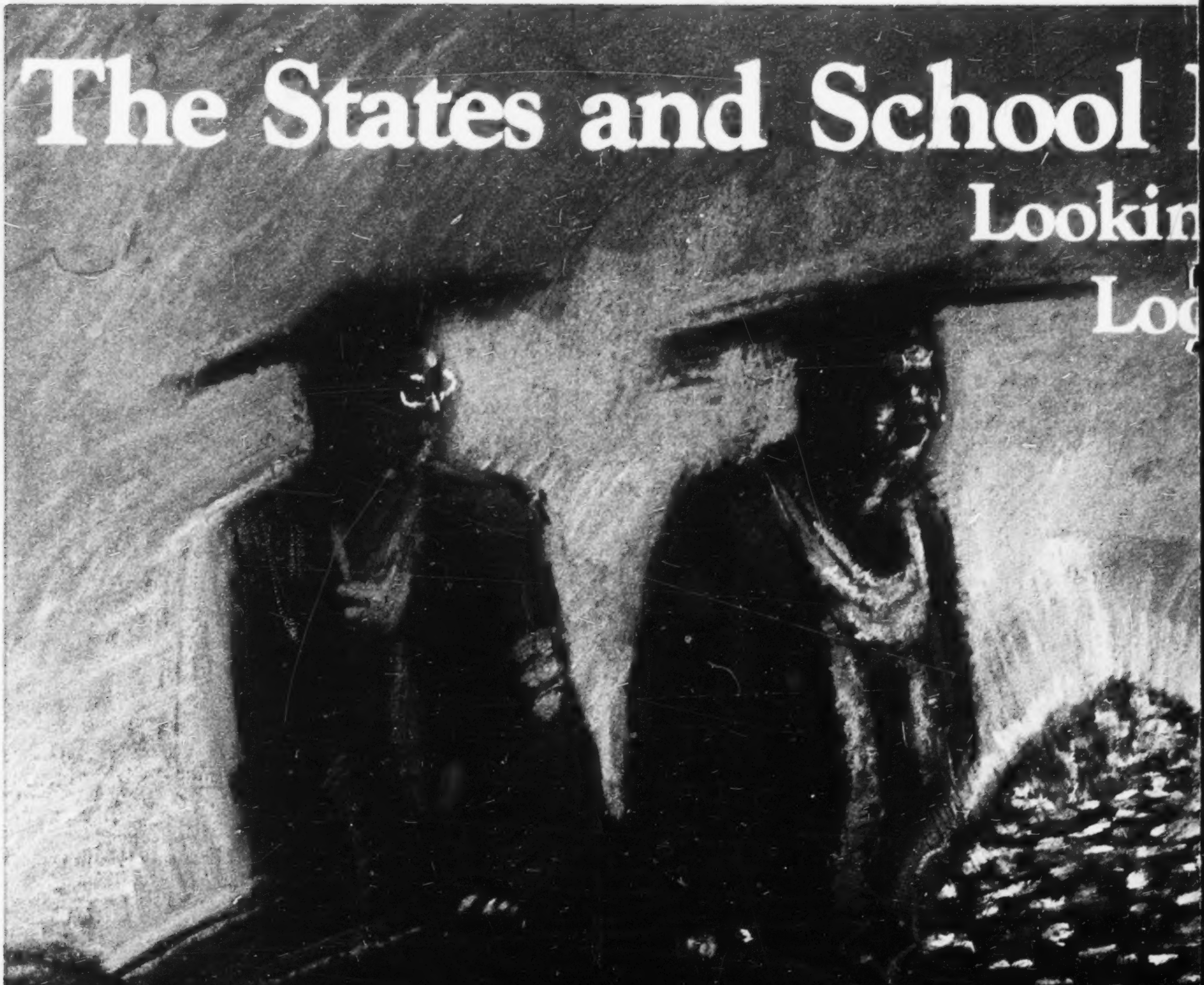

Finance:
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by John Augenblick

Illustration by Mark Brought

How are the new initiatives for school improvement connected with school financing? Mr. Augenblick discusses how school finance systems in the states have changed in recent years and speculates on where they might go in the years to come.

DURING THE last 18 months, elementary and secondary education in the U.S. has been the object of a great deal of attention. Most of this attention has been directed toward recommending changes in the way educational services are delivered, in order to improve the schools. Some of the proposed changes would cost very little to implement; others, particularly those that deal with teacher salaries or time spent in school, could be very costly. Most of the national reports on education conveniently avoided discussing how such changes would be funded.

Recently, however, several states have begun to take steps designed to improve education. In most cases, the changes have focused on the curriculum, time spent in school, graduation requirements, teacher qualifications and training, and teacher salaries. Interestingly, the most costly changes have been made in states that have traditionally spent relatively little on education; the changes have been funded by increases in statewide taxes, most notably the sales tax.

The states have addressed the issues of school improvement and school finance independently. Funds for school improvement have been allocated apart from the formulas used to distribute the vast majority of state aid to education. Those formulas, which have been developed over the past 75 years, are designed to equitably allocate basic support and special aid for high-cost programs, considering both the needs of school districts and their widely varying abilities to support their programs. In the last 15 years more than half of the states have modified their school finance systems to make them more equitable, both in terms of the resources they provide and in terms of the tax burdens they impose.

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Linking school improvement to school finance will not be easy. As long as the funding of school improvement is distinct from general support, it is questionable whether support for school improvement can be sustained; moreover, it is possible that the effects of school improvement efforts will not be distributed equitably. This is true for several reasons: 1) legislators will be able to focus on the relationship between the funds they are providing for improvement and the effects of those improvements, which may not be forthcoming as quickly as seems politically desirable; 2) to the extent that certain taxes are earmarked to support improvement, future support would depend on the revenue made available by the taxes, which are sensitive to the strength of the economy rather than to the cost of school improvement; and 3) if the ability of districts to provide their own funds for improvement is not considered, state aid for school improvement will leave the spending gap between wealthy districts and less-wealthy districts unchanged.

However, integrating school improvement and school finance is likely to raise questions about local control. Policy makers must ask themselves whether they want teacher reimbursement systems (i.e., statewide salary schedules, career ladders, or merit pay plans), pupil/teacher ratios, or spending requirements built directly into formulas. They will also need to determine whether formulas should provide financial incentives that link the allocation of support to local school district performance or to district conformity with state-established procedures thought to be critical for school improvement.

The school finance systems of the states vary in terms of both the level of support they provide and the method used to allocate state aid. It is unlikely that all states will choose the same approach to school improvement or that they will all use the same procedure to integrate school improvement into their school finance systems. In order to understand where the states are headed, it is important to know where they are now. In the remainder of this article I will describe how school finance systems have changed in recent years, and I will speculate about where they might go in the years to come.

LEVEL OF STATE SUPPORT

During the last five years public school revenue grew from about $81.8 billion to more than $120.4 billion, an increase of 47%. Since the number of pupils was declining – from 40.2 million in average daily attendance (ADA) in 1977-78 to 36.7 million in 1982-83 – the growth in revenue per ADA was large: from $2,035 per ADA in 1977-78 to $3,280 per ADA in 1982-83, an increase of 61%.

State support grew at a faster pace than total revenue during this same period. In 1977-78 states provided $36.1 billion, or about 44% of all revenue. In 1982-83 states provided $58.3 billion, or nearly 48.5% of all revenue. Thus state support increased by a total of 61% and by 77% in per-pupil terms.

The states vary in the percentage of all revenue they provide. In 1982-83, 12 states (Alabama, Alaska, California, Delaware, Hawaii, Idaho, Kentucky, New Mexico, North Carolina, Oklahoma, Washington, and West Virginia) provided more than 60% of the revenue for their schools. That same year, 13 states (Connecticut, Illinois, Massachusetts, Michigan, Missouri, Nebraska, New Hampshire, New Jersey, Oregon, Rhode Island, South Dakota, Vermont, and Wisconsin) provided less than 40% (nine of these states provided between 34% and 40%) of all public school revenue; the remaining 25 states provided between 40% and 60% of all revenue. In 1977-78 eight states provided more than 60% of all public school revenue, while 17 states provided less than 40% of all public school revenue.[1]

State support for public schools has become a much more important part of state budgets, despite the fact that between 1977-78 and 1982-83 only a slight increase (from 34.5% to 35.4%) occurred in the average percentage of all state expenditures devoted to public schools. In 1982-83 support for public schools consumed more than 40% of all state expenditures in 21 states and less than 30% of all state expenditures in 12 states; in 1977-78 school aid consumed more than 40% of all state expenditures in 15 states and less than 30% of all state expenditures in 15 states.[2]

Over the past few years, state expenditures for public schools have decreased slightly in relation to income. Table 1 indicates the relative standing of the states in terms of both state school aid per $1,000 of personal income and the growth or decline in that amount between 1977-78 and 1982-83. Of the 26 states in which state support for education has decreased relative to income, seven (Alabama, Illinois, Maryland, Massachusetts, New Hampshire, Rhode Island, and Wisconsin) provide low support relative to income, while two (Delaware and Utah) provide high support. Of the 24 states in which state support has increased relative to income, eight (Alaska, Hawaii, Idaho, Kentucky, New Mexico, Oklahoma, Washington, and West Virginia) provide high support relative to income, while six (Connecticut, Missouri, Nebraska, Ohio, South Dakota, and Virginia) provide low support.

Table 1. Distribution of States in Terms of the Relationship Between State Support per $1,000 of Personal Income and Change in State Support per $1,000 of Personal Income

	State School Aid per $1,000 of Income in 1983		
	Low (Less Than $20)	Medium ($20 - $30)	High (More Than $30)
Change in State Aid per $1,000 of Income, 1978-1983			
Increase	6	10	8
Decrease	7	17	2

Source: *State Support for Education, 1982-83* (Denver: Augenblick, Van de Water & Associates, December 1983).

The states provided nearly 57% of all *new* school revenues between 1977-78 and 1982-83. Between 1982-83 and 1983-84 the states provided 59% of the new funds available to public schools. Again, however, the proportion of new funding attributable to the states varied widely. Ten states (Alabama, Alaska, Georgia, Hawaii, Idaho, Massachusetts, Minnesota, New Mexico, North Dakota, and Utah) provided more than 100% of all new funds, which indicates that increases in state aid exceeded increases in total support and that state aid made up for losses in other sources of funding. In six states (California, Delaware, Kansas, Kentucky, Maine, and Washington), state support accounted for between 75% and 100% of all new school aid. In 13 states (Arizona, Arkansas, Colorado, Connecticut, Florida, Louisiana, Mississippi, Missouri, North Carolina, Ohio, Oklahoma, South Carolina, and Virginia), new state aid provided between 50% and 75% of all new support for schools. New state aid accounted for between 25% and 50% of new funds in 13 states (Illinois, Iowa, Maryland, Michigan, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Texas, West Virginia, Wisconsin, and Wyoming). In seven states (Montana, Nebraska, Nevada, Oregon, South Dakota, Tennessee, and Vermont), new state funds provided less than 25% of all new funds for schools.[3]

When these figures are compared to those of earlier years, they indicate the growing importance of the states in providing support for schools: between 1977-78 and 1980-81 only 10 states provided more than 75% of the new funds for schools; this number grew to 11 states for the period from 1980-81 to 1981-82, 14 states for the period from 1981-82 to 1982-83, and 16 states for the period from 1982-83 to 1983-84. Similarly, a decrease has occurred in the number of states providing less than 25% of the new funds for schools: between 1977-78 and 1980-81, 15 states were responsible for less than 25% of the new funds for schools, but less than half that number of states had as low a level of commitment in the period from 1982-83 to 1983-84.[4]

DECLINING RELIANCE ON PROPERTY TAXES

The reduction of property taxes proved to be one of the major stimuli to school finance reform in the 1970s. At the time, property taxes were the most unpopular of all taxes; most policy makers viewed them as regressive, i.e., placing a relatively higher tax burden on citizens with low incomes. Dramatic increases in property values (in some cases linked to reassessments), combined with a perception that school expenditures were out of control, led to concern about the level of property taxes. Between 1971 and 1981 property taxes increased from $36.7 billion to $72 billion; despite this increase, property taxes declined from 15% of all government tax revenues to 11%. During the same period, property taxes decreased from an average of 1.98% of market value to 1.26% of market value.[5] The figures in Table 2 indicate the annual growth in property taxes relative to other taxes between 1973 and 1981.

In part, this reduction in property tax

revenue resulted from limitations imposed on property assessments, restrictions on property tax rates or rate increases, and controls placed on local government spending. Currently, 39 states use one or more types of limitations to control the spending and tax authority of local governments, including school districts. In 34 states, property tax collections are limited; 13 states place limits on property tax rates; 11 states have revenue or spending limitations; and five states place limits on increases in property assessments. In addition, 32 states use "circuit breakers" to limit the burden of property taxation relative to family income, although in only seven of these states are all homeowners and renters eligible for the appropriate reduction.[6]

As a result of these limitations, local support for schools — most of which is derived from property taxes — has decreased in the last decade. In 1972-73 local support provided more than 60% of all public school revenue in 16 states; by 1982-83 local support was that high in only four states (Nebraska, New Hampshire, South Dakota, and Wyoming). In 1972-73 local support provided less than 40% of all public school revenue in 15 states; by 1982-83 local support was that low in 22 states.

The property tax burden for schools also decreased relative to personal income. In 1972-73 local support for schools was more than $30 per $1,000 of personal income in 21 states; by 1982-83 local support was that high in only 11 states (Michigan, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Oregon, South Dakota, Vermont, Wisconsin, and Wyoming). In 1972-73 local support for schools was less than $20 per $1,000 of personal income in 15 states; by 1982-83 there were 20 states with property tax burdens that low.[7]

CHANGES IN METHODS OF SUPPORT

Over the last 15 years, the approaches used by states to allocate support to local school districts have become increasingly complex in order to meet the widely varying needs of all districts. In the last half of the 19th century, when states first began to provide support for the schools, simple approaches were used that provided the same amount of aid per pupil, per teacher, or per classroom. Later, policy makers recognized the importance of tying state aid to the fiscal capacity of school districts, the cost of providing a wide range of educational programs, the size of school districts, and a host of other factors that vary among the large number of school districts operating in most states (half of the states have more than 200 school districts). In order to meet these objectives, new systems of distributing state aid have been developed. Though there are many similarities in the structure of the 50 systems of state aid, no two are alike. Each one differs in the way that it balances local control against statewide objectives.

All states have systems of providing aid for the current operating revenues of school districts.[8] States differ in regard to what expenditures they include in this system: some include only what they define as basic instructional expenditures, while others include expenditures for special programs, transportation, or other costs. In most states, the basic aid system provides the majority of all state aid to schools. The most popular approach used by states to provide basic support is the "foundation" program. Twenty-two states use this system, under which the state sets both a minimum expenditure level and a required tax effort and pays the difference between the expenditure level and the amount that districts raise at the required tax rate. The simplest versions of this system specify the minimum expenditure level in dollar-per-pupil terms; more complex versions specify the minimum in terms of dollars per classroom unit or in terms of pupil/teacher ratios and minimum statewide salary schedules.

In 10 states, the basic aid program is some form of a "guaranteed tax base" approach. Under this system, the state specifies a rate at which it will match local taxes; the rate varies inversely with the wealth of school districts. The state essentially allows school districts to behave as if they had the wealth of some designated district — typically the district of average wealth. The basic difference between this approach and the foundation program is that the state does not specify the spending level beyond which state aid will no longer be available. In any case, because of other restrictions, *no* state aid system is open-ended.

Fourteen states combine these two approaches into multiple tiers, usually by providing a guaranteed tax base on top of a foundation program. The purpose of this combined approach is to specify a minimum spending level, with an associated requirement of a minimum tax effort, while helping to equalize the ability of districts to provide funds beyond the minimum level. Multi-tiered systems permit the state to meet its objectives of adequacy and equity while also promoting local control, at least over spending.

The states also use a number of different approaches in providing support for such high-cost programs as special education, compensatory education, and bilingual education. Twenty-seven states treat such programs categorically (separate from the basic aid program). These states tend to provide either a fixed amount per pupil or a percentage of the excess cost of providing such services. The other states integrate the funding of special, high-cost programs into the basic aid program through the use of pupil weights or classroom-unit factors. Under these approaches, either the number of pupils in a high-cost program is weighted to reflect the relationship between the cost of the special program and the cost of the regular program or the number of pupils eligible to be counted as a classroom unit is lower for special programs than for the basic program.

In recent years, most states have not changed the structure of their school finance systems as frequently as they did between 1970 and 1980. Arkansas, West Virginia, and Wyoming were required to change their school finance systems as a result of court action; prior to 1980 only four other states had been required to change their school finance systems as a result of court intervention: California, Connecticut, New Jersey, and Washington. Arkansas incorporated a pupil-weighted system into its foundation program and required that a large portion of new state funds be used for teacher salaries; West Virginia has embarked on a long-term program to upgrade and equalize school resources, including teacher salaries, pupil/teacher ratios, materials, and facilities; Wyoming now uses a "recapture" procedure, under which local funds above a certain level are returned to the state (rather than the property tax rate being lowered), in order to deal with the problems caused by enormous wealth

Table 2. Annual Rates of Increase in Different Taxes Between 1973 and 1981

	Type of Tax			
	Property	Sales	State Income	Federal Income
Period	%	%	%	%
1973-78	7.8	12.3	13.3	11.9
1978-81	4.6	9.6	12.0	16.4

Source: *Significant Features of Fiscal Federalism in 1981-82* (Washington, D.C.: Advisory Commission on Intergovernmental Relations, April 1983).

disparities among school districts in the state.

This year Texas revamped its entire system of state aid – replacing a foundation program driven by pupil/teacher ratios and a statewide salary schedule with a pupil-weighted system. In 1981 Oklahoma also incorporated a pupil-weighted approach into its school finance system, using a factor that weights pupils in small districts more heavily. Two states have modified the way they determine the relative wealth of school districts: income, in addition to property wealth, is now used in Vermont and Pennsylvania. Prior to 1980, Connecticut, Kansas, Maryland, Missouri, Rhode Island, and Virginia combined income and property in measuring the fiscal capacity of school districts. New Hampshire is considering this approach. Three states incorporated "price indices" into their formulas as a means of recognizing regional variations in costs: Missouri, Ohio, and Texas. Alaska and Florida already used such a factor; Illinois is considering using it.

Finally, several states have begun to provide large amounts of funds for teacher salaries.[9] In some states, all teacher salaries are being raised (e.g., North Carolina, South Carolina, and Texas); in a few states, aid is provided to teachers based on a merit or a career ladder approach (e.g., California, Florida, and Tennessee); and in some states, teacher salaries are being equalized across the state (e.g., Delaware, Oklahoma, and West Virginia).

STATES AND TEACHER SALARIES

Traditionally, states have played only a small role in setting the level of teacher salaries. In a few states, the legislature establishes a statewide minimum salary schedule, though districts are free to supplement the minimum levels specified. States may require that teachers be paid in relation to their training and/or experience, although actual salary levels will be determined by local school districts. In some states, a portion of the new funds provided by the state in a given year may be earmarked for salary increases. The introduction of state-supported merit pay or career ladder plans is likely to result in higher salaries for some teachers. Finally, because state aid is such a large proportion of all school revenue in many states, the availability of state aid has a large indirect impact on teacher salaries.

The number of teachers is one factor that affects teacher salary levels. During the last five years enrollments have continued to decline in many states; in some states, however, the number of teachers has continued to increase, while in other states the number of teachers has just begun to decline. The number of teachers decreased between 1978-79 and 1983-84 in 29 states, all of which had declining enrollments (Table 3). Among the remaining 21 states, which registered increases in the number of teachers, enrollments declined in 15 of them. In almost all cases where both enrollments and the number of teachers decreased, enrollments declined at a faster rate than the number of

Table 3. Distribution of States Based on the Relationship Between Changes in Pupil Enrollment and Changes in the Number of Teachers Between 1978-79 and 1983-84

	Change in Enrollment				
	Increase	Decrease (%)			
		0-4.9	5.0-9.9	10.0-14.9	15.0-19.9
Change in Number of Teachers					
Increase (%)					
More than 9.9	4	3	-	-	-
5.0-9.9	1	5	2	1	-
0.0-4.9	1	1	3	-	-
Decrease (%)					
0.0-4.9	-	1	7	3	-
5.0-9.9	-	1	1	7	2
10.0-14.9	-	-	-	2	3
More than 14.9	-	-	-	1	1

Source: John Augenblick, *The States and Teacher Salaries* (Denver: Augenblick, Van de Water & Associates, September 1984).

Table 4. Distribution of States Based on the Relationship Between 1983-84 Average Salary and Change in Average Salary Between 1978-79 and 1983-84

	Percent Change in Average Salary: 1978-79 to 1983-84			
	30-39	40-49	50-59	More Than 59
1983-84 Average Salary				
Less than $16,000	-	1	-	-
$16,000-$17,999	3	4	2	-
$18,000-$19,999	2	5	4	-
$20,000-$21,999	2	3	5	1
$22,000-$23,999	1	4	3	-
More than $23,999	1	5	2	2

Source: John Augenblick, *The States and Teacher Salaries* (Denver: Augenblick, Van de Water & Associates, September 1984).

Table 5. Distribution of States Based on the Relationship Between the Total Amount Spent per Teacher and The Percentage of Spending Devoted to Teacher Salaries, 1983-84

	Average Expenditure per Teacher			
	Less Than $40,000	$40,000-$49,999	$50,000-$59,999	More Than $59,999
Percentage of Expenditures for Teacher Salaries				
Less than 36	-	-	-	3
36-39	-	1	5	3
39-42	-	8	6	4
42-45	3	10	3	-
More than 45	2	2	-	-

Source: John Augenblick, *The States and Teacher Salaries* (Denver: Augenblick, Van de Water & Associates, September 1984).

> **As states become more involved in school improvement and as they tie teacher salaries to school finance systems, state control will increase.**

teachers. Consequently, pupil/teacher ratios have decreased during the past five years. At the same time, types of special services available to pupils have increased.

During the last five years the salary of the average teacher has increased. However, teacher salaries still vary greatly from state to state. As shown in Table 4, salaries in some states have increased rapidly during the last five years, while in other states they have increased much more slowly. In eight states (Maine, Mississippi, New Hampshire, North Carolina, South Carolina, South Dakota, Tennessee, and West Virginia), salaries have increased slowly (less than 50% over the five-year period) and remain relatively low (an average salary of less than $18,000). Many of these states took action last year to rectify this situation. In two states (Arkansas and Vermont), salaries remain low, though they have been rising rapidly. In 11 states (California, Connecticut, Hawaii, Illinois, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island, and Washington), salaries are relatively high (an average salary of more than $22,000), despite the fact that they have been rising slowly during the last five years. Finally, in seven states (Alaska, Colorado, Michigan, Nevada, Oregon, Wisconsin, and Wyoming), salaries are relatively high, and they have been rising rapidly.

Despite the fact that pupil/teacher ratios have decreased during the past five years, the percentage of all expenditures spent on classroom teachers has also decreased during the same period. Between 1978-79 and 1983-84 expenditures for classroom teachers declined from 43.1% to 40.4% of all current operating expenditures. This reflects an interaction among the following factors:

- the number of teachers decreased by 3.6%;
- the average teacher salary increased by 46.2%; and
- total expenditures increased by 50.4%.

Clearly, even as more money has been provided for education, a larger proportion of it is being used for non-teacher-related expenditures. As shown in Table 5, the higher the spending per teacher, the lower the average percentage that goes to salaries for teachers. Of the 12 states with a relatively low percentage of all expenditures devoted to teachers (less than 39%), 11 have relatively high total spending levels (more than $50,000 per teacher). Of the 20 states with a relatively high percentage of all expenditures devoted to teachers (more than 42%), 17 have relatively low total spending levels (less than $50,000 per teacher).

FUTURE OF SCHOOL FINANCE IN THE STATES

There is no "perfect" school finance formula; in fact, no one approach is universally accepted. Systems of school finance are designed to accomplish certain broad objectives, which vary among the states, and to respond to the history, the economics, and the political issues of each state. Each system of school finance reflects a political balance among:

- the availability of state support and local support;
- the achievement of statewide equity and local control;
- the need to fund "basic" services and special, high-cost services;
- the need to support personnel costs and nonpersonnel costs;
- the desire to reimburse districts for actual expenditures and to provide incentives to improve quality or efficiency;
- the need to support current expenditures and capital expenditures;
- the desire to support public and private schools; and
- the desire to support elementary/secondary education and higher education.

In the future, states are likely to move in the following directions, though the extent of movement in a particular state will depend on the nature of its current aid system, the level of support it provides, and its political and economic climates.

1. State support for schools will stabilize or decline over the next few years, as local support increases. In a few states with very low levels of state support, state education aid may increase; by the same token, state aid could deteriorate in those states now providing between 50% and 75% of all support.

2. Property taxes will increase. Property taxes are a stable source of revenue, and their use, when combined with other taxes, will assure that adequate revenue is available for education. However, states will have to improve their property assessment systems in order to increase their reliance on property taxes.

3. States will make their school finance formulas more sensitive to teacher salary levels. They will do this in order to insure that salaries are adequate and to promote greater equity in salaries across school districts.

4. States will use their school finance systems to provide incentives for school improvement. Some portion of state aid will be distributed in response to school district behavior. Although this is not a new concept, the incentives will be explicit and school districts will have some choice about compliance.

5. Multi-tiered formulas will become more common; states will use such formulas to promote a wide range of objectives that cannot be promoted through use of a single formula. Different approaches will be used to promote adequacy, local choice, and improvements in quality.

6. A higher proportion of expenditures will be consumed by teachers, reversing the trend of the last decade. This will happen despite the use of new technological tools, because teacher salaries will rise and pupil/teacher ratios will not rise as enrollments begin to increase.

7. Spending variations among the states will be reduced, as low-spending regions continue to invest in education. Spending variations within states will be reduced, as teacher salary levels are equalized over time.

8. Local control over spending will be reduced. As states become more involved in school improvement and as they tie teacher salaries to school finance systems, state control will increase.

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1. *Estimates of School Statistics 1982-83* and *Estimates of School Statistics, 1978-79* (Washington, D.C.: National Education Association, January 1979 and April 1984).
2. *State Support for Education, 1982-83* (Denver: Augenblick, Van de Water & Associates, December 1983).
3. Based on data contained in *Estimates of School Statistics, 1983-84* (Washington, D.C.: National Education Association, April 1984). Data for Indiana were missing.
4. John Augenblick, "School Finance in the 1980s, Part II: State Issues for the 1980s," in *Spectrum* (Arlington, Va.: Educational Research Service, Summer 1984).
5. John Augenblick, "Property Taxes and the Future of School Finance" (Denver: Augenblick, Van de Water & Associates, February 1984).
6. *Significant Features of Fiscal Federalism in 1981-82* (Washington, D.C.: Advisory Commission on Intergovernmental Relations, April 1983).
7. Augenblick, "Property Taxes. . . ."
8. The discussion in this section is based on information contained in John Augenblick, "How Do School Finance Systems Work?" (Denver: Augenblick, Van de Water & Associates, January 1984).
9. See Allan Odden, *Education Finance in the States: 1984* (Denver: Education Commission of the States, June 1984) for a discussion of the approaches some states are using to improve teacher salaries and the quality of the educational system. ☐

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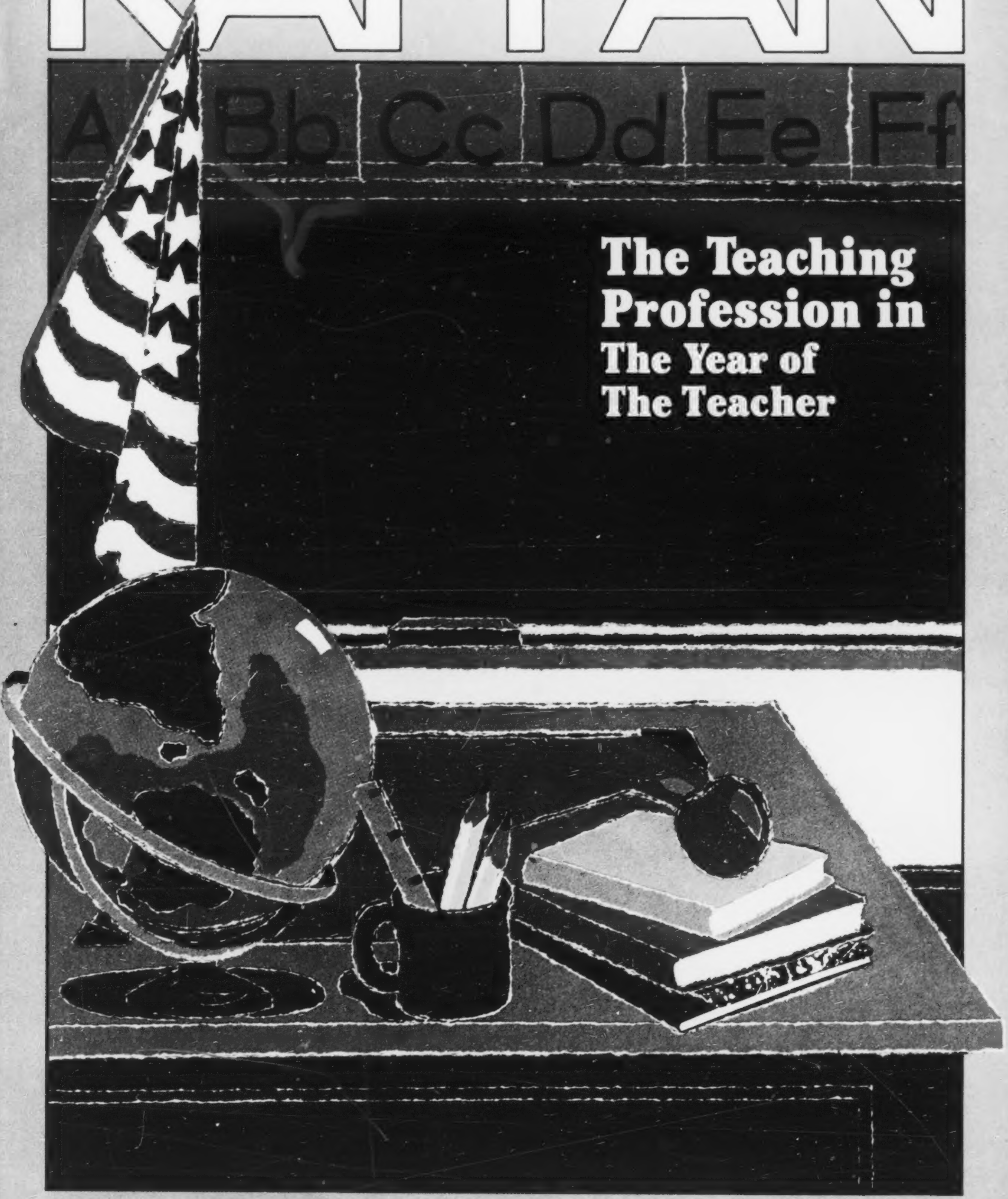
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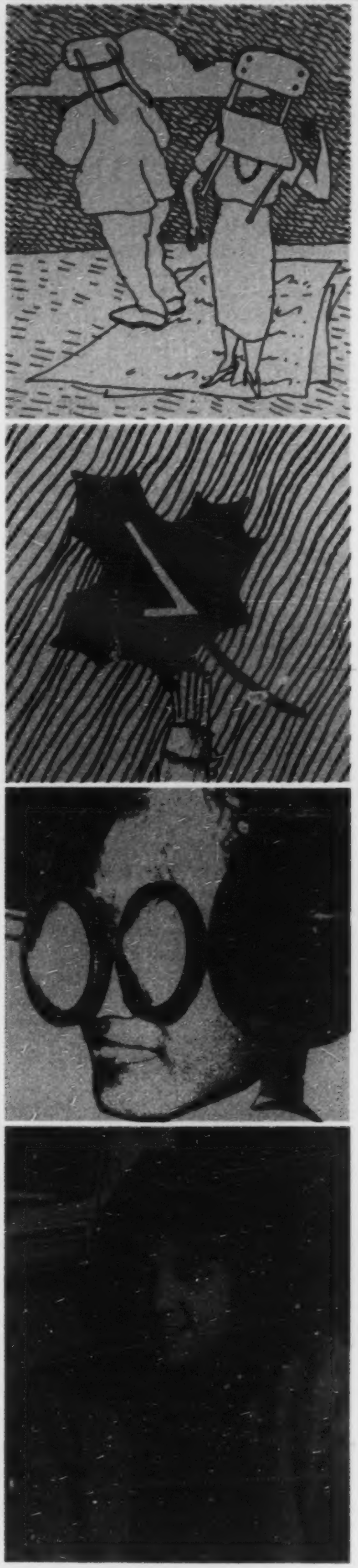

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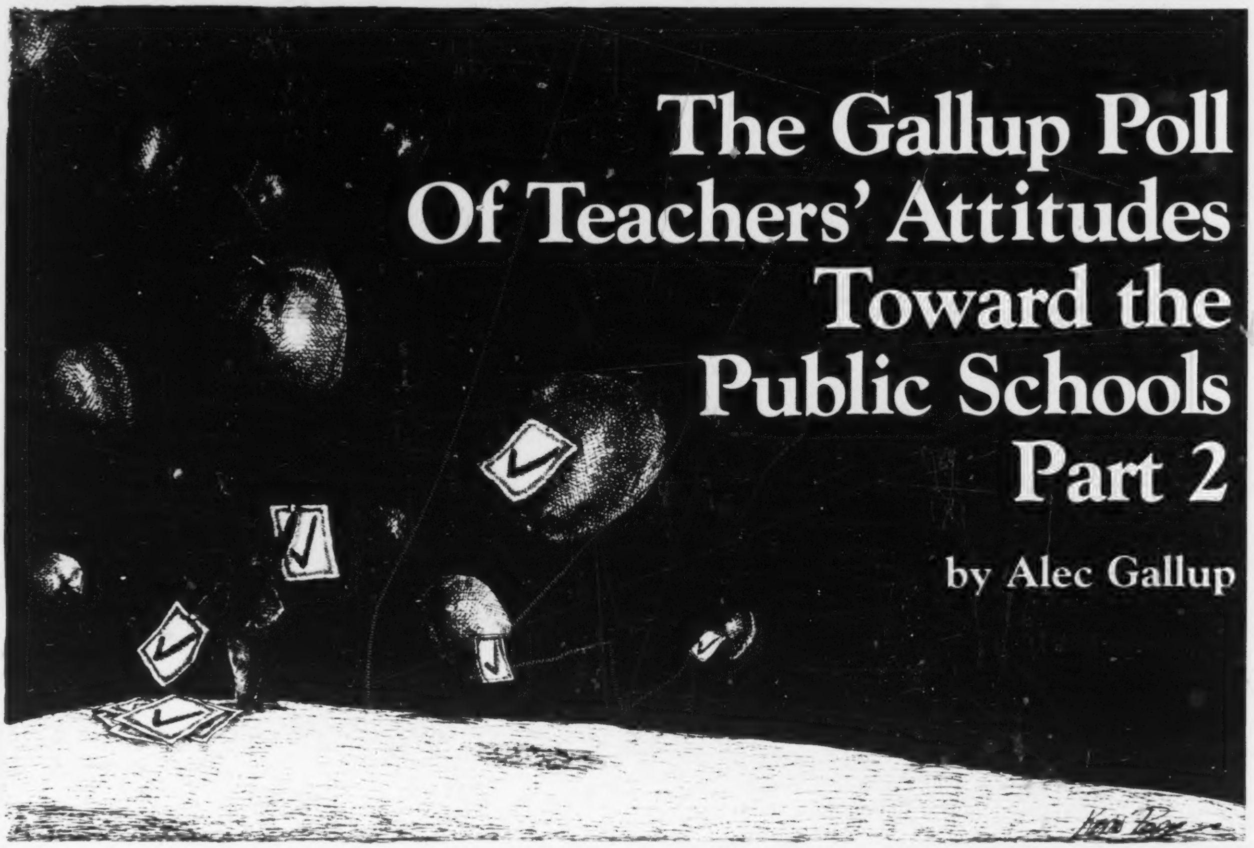
Cover Illustration: Marti Shohet

The Gallup Poll Of Teachers' Attitudes Toward the Public Schools

Part 2

by Alec Gallup



Research Procedure

The findings of this survey come from mail interviews with a representative sample of U.S. teachers. From a list provided by Market Data Retrieval, a sample of 2,000 teachers was selected to reflect the total national population of teachers. The sample was stratified proportionately by region and by teaching level.

Questionnaires were mailed to the 2,000 teachers between 30 April and 9 May 1984. Six questionnaires were undeliverable, producing an effective mailing of 1,994 questionnaires. Of these, 813 (41%) were completed and returned.

To insure that the attitudes of nonrespondents were not significantly different from those of respondents, a telephone survey was conducted with a sample of 100 teachers who had not answered the mail survey. The results of the telephone survey showed that the sample of nonrespondents to the mail survey closely paralleled the sample of respondents — both in terms of attitudes and in terms of socioeconomic and demographic characteristics.

Summary of Findings

As the first portion of this poll, published last October, revealed, attitudes of American teachers are remarkably uniform. Very few attitudinal differences are apparent among the nine subgroups in the teacher population by which the data were analyzed. Only in the case of elementary and high school teachers do differences in views emerge — and then only rarely.

At the same time, the attitudes of teachers and the public are frequently at odds. Of the approximately 30 issues in the two installments of this teacher poll on which the opinion of the public is also available, teachers and the public agree on one-third of the issues and disagree on two-thirds.

Desirability of teaching as a profession. Teachers are somewhat negative about the desirability of teaching as a profession. Teachers are about evenly divided on whether they would like a daughter to enter teaching, but they are against a son going into teaching by a ratio of 2 to 1 (59% to 31%).

By contrast, the public favors a daughter going into teaching by a ratio of about 5 to 4 (50% to 39%). The public is divided as to whether a son should enter the profession.

How teachers see themselves. Teachers rate their contribution to society the *highest* of 12 professions, including physicians, clergy, business executives, and lawyers. But they also feel that their status is the *lowest* of all of these professions.

The general public rates teachers' contribution to society somewhat lower than that of clergy or physicians. The public rates teachers' status in the community somewhat higher than the teachers themselves do.

Teacher unions/teacher strikes. U.S. teachers strongly support teacher unions and associations. By a 5 to 2 ratio, they believe that unions have contributed to public education; by a 2 to 1 ratio, they believe that teachers should have the right to strike.

By contrast, only about one person in five in the general public feels that teacher unions have improved the quality of public education. Twice as many believe that unions have hurt public education. The public also opposes, by a 2 to 1 ratio, giving teachers the right to strike.

Goals of education. A majority (56%) of teachers rate

Illustration by Kevin Pope

developing good work habits, the ability to organize one's thoughts, and the ability to concentrate as a most important goal of education. The same percentage of teachers also rate the ability to think — creatively, objectively, and analytically — as a goal of the highest importance. A majority of teachers also cite developing the ability to speak and write, developing the ability to use mathematics for everyday problems, and encouraging the desire for lifelong learning as among the highest priorities of education.

Attitudes concerning some recommendations of the national commissions and task forces on education. The attitudes of U.S. teachers are mixed regarding the recommendations for improving the public schools that have been made by the recent wave of national commissions and task forces on education. By wide margins, teachers favor higher salaries for teachers and state board examinations to prove teachers' knowledge of subject matter (October *Kappan*).

The reform reports also made a number of recommendations for changing subject requirements. Virtually all teachers (95%) agree with the reports that English and math should be required of all students, not just the college-bound. Specifically, teachers recommend an average of 3.8 years of English for the college-bound and 3.6 years of English for the non-college-bound; 3.2 years of math for the college-bound and 2.7 years of math for the non-college-bound; 3.0 years of science for the college-bound and 2.7 years of science for the non-college-bound.

Fifty-nine percent of teachers would require all students to take computer science; 78% would require vocational training for the non-college-bound, and 48% would require some vocational education even for the college-bound. Seventy-seven percent of teachers would require about two years (2.1) of a foreign language for college-bound students.

The public's attitudes toward subject requirements are basically the same as those of teachers, with the exception that a smaller percentage of the public would require science of high school students and a slightly larger percentage would require computer science.

Another of the major recommendations of the national commissions and task forces was that either the school day or school year be lengthened to provide more time for instruction. U.S. teachers oppose both of these recommendations by roughly the same margins: 66% oppose lengthening the school year; 72% oppose lengthening the school day. Virtually every major subgroup in the teacher population opposes both of these recommendations.

Sex education. U.S. teachers overwhelmingly support sex education in both the secondary schools and the elementary schools. Almost nine out of 10 teachers (86%) support sex education in high school, and three out of four (75%) support sex education in elementary school.

More specifically, for high school students, large majorities of teachers approve the discussion of such topics as the biology of reproduction, venereal disease, and birth control. Smaller majorities approve of including in high school sex education classes such topics as premarital sex, the nature of sexual intercourse, abortion, and homosexuality. For elementary school students, the only topic that a majority of teachers (70%) feel would be appropriate is the biology of reproduction.

The public supports sex education in the high schools by a smaller margin than teachers do (70% as opposed to 86%). But the public is about evenly divided — 45% for and 48% against — on the question of sex education in the elementary schools.

Control of instruction. Teachers feel that they should have the most influence on what is taught in the public schools. They feel even more strongly that they should have the most influence in the selection of schoolbooks.

By contrast, the public feels that parents and school boards should have the most say about what is taught in the public schools. But the public agrees with teachers that teachers should have the most say about the selection of books and other instructional materials.

Desirability of Teaching as a Profession

As a way of measuring their attitudes about the desirability of teaching as a profession, teachers were first asked whether they would like to have a daughter or a son enter the teaching profession. Teachers are about evenly divided in the case of a daughter's becoming a teacher (43% in favor, 46% opposed) and about 2 to 1 against a son's doing so (31% in favor, 59% opposed).

The question:

> **Would you like to have a *daughter* of yours take up teaching in the public schools as a career?**
>
> **Would you like to have a *son* of yours take up teaching in the public schools as a career?**

	Daughter %	Son %
Yes	43	31
No	46	59
No opinion	11	10

Teacher Opinion vs. Public Opinion

Teachers' views on the desirability of teaching as a profession differ somewhat from the attitudes of the public. For example, the public favors a daughter's entering teaching by a ratio of roughly 5 to 4 (50% to 39%). For a son, the public is about evenly divided: 46% say that this would be a good idea, and 42% say that it would be a bad idea.

	All Teachers		U.S. Public	
	Daughter	Son	Daughter (1984)	Son (1984)
	%	%	%	%
Yes	43	31	50	46
No	46	59	39	42
No opinion	11	10	11	12

How Teachers See Themselves

Teachers were asked to rate each of 12 professions on a scale of zero to 10 to indicate their perceptions regarding two factors: 1) the profession's contribution to society and 2) the amount of prestige people in that profession have in their communities.

Not surprisingly, teaching heads the list for contribution to society, with about six teachers in 10 giving their peers a top rating. Next in order are physicians, who receive a 10 from 46% of teachers, and clergy, who receive a 10 from 43% of teachers.

Public school principals are far down the list. Only 19% of teachers give school principals a 10 for their contribution to society. At the bottom of the list are lawyers (6%), funeral directors (5%), business executives (4%), local political officeholders (4%), bankers (3%), realtors (2%), and advertising practitioners (2%).

The prestige that teachers feel they have in their own communities appears to be a sensitive subject. Only 1% of teachers give their profession the highest rating for its status in the community.

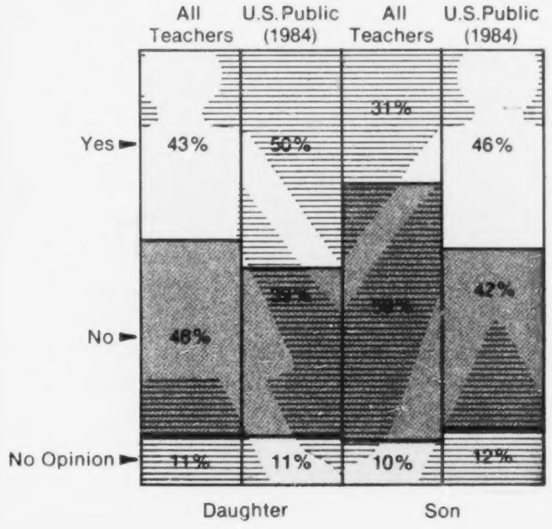
When ratings of societal contribution are compared with ratings of community status, we find that teachers rate three professions — teaching, the clergy, and public school principals — as lower in status than in their contribution to society. The gap for teachers is by far the largest — 59% to 1%.

The question:

> **Now we would like your impressions about different professions and occupations — based on your personal experience or on what you've heard or read. To indicate your impression, please use this scale that goes from the lowest rating of zero to the highest rating of 10.**
>
> **First rate the professions listed below for the amount each contributes to the general good of society. The more you feel it contributes to the good of society, the higher the number you would pick; the less you feel it contributes, the lower the number you would pick.**
>
> **Now rate these professions for the amount of prestige or status you feel people in each profession have in your community.**

	Highest Rating	
	General Good Of Society %	**Prestige Or Status %**
Public school teachers	59	1
Physicians	46	68
Clergy	43	20

Is Teaching a Desirable Profession?



	Highest Rating	
	General Good Of Society %	**Prestige Or Status %**
Public school principals	19	3
Judges	13	45
Lawyers	6	32
Funeral directors	5	4
Business executives	4	26
Local political officeholders	4	15
Bankers	3	22
Realtors	2	3
Advertising practitioners	2	4

☑ Teacher Opinion vs. Public Opinion ☑

The public's feelings about the contribution teachers make to society and about the status of teachers differ somewhat from the views held by teachers. The public feels that teachers contribute substantially less to society than teachers feel they do. Twenty-nine percent of the public would give teachers the highest rating for their contribution to society, compared with 59% of teachers who would give themselves a 10.

On the other hand, the public feels that teachers have *more* status in the community than teachers feel that they do. Nineteen percent of the public would give teachers the highest rating for status. This figure is far higher than the 1% of teachers who rate their status a 10, but it is still one of the lower ratings that the public gives to any profession. Indeed, teaching is the profession that the public perceives as having the largest disparity between its status in the community and its contribution to society.

	Highest Rating			
	General Good of Society		**Prestige or Status**	
	All Teachers %	**U.S. Public %**	**All Teachers %**	**U.S. Public %**
Public school teachers	59	29	1	19
Physicians	46	41	68	59
Clergy	43	46	20	42
Public school principals	19	28	3	25
Judges	13	12	45	31
Lawyers	6	12	32	31
Funeral directors	5	20	4	17
Business executives	4	-	26	-
Local political officeholders	4	8	15	16
Bankers	3	14	22	35
Realtors	2	7	3	6
Advertising practitioners	2	4	4	8

Unions, Strikes, and Arbitration

American teachers strongly support teacher unionism, as well as teachers' right to strike over salaries and working conditions. Asked whether they feel that unionization has helped or hurt the quality of public education in the U.S., half of the teacher respondents (49%) say that it has helped; only 18% say that unionization has hurt public education; 26% say that it has made no difference.

Teachers also support their right to strike. Asked whether public school teachers should be permitted to

Chart by Mary Miller

strike, almost two-thirds (63%) feel that they should be permitted to strike; only 26% say that teacher strikes should not be allowed.

Interestingly, teachers favor compulsory arbitration in disputes. Asked if they would favor arbitration if an agreement cannot be reached between a union and a school board, nine out of 10 favor such a plan, and only 3% are opposed.

The question:

Most teachers in the nation now belong to unions or associations that bargain over salaries, working conditions, and the like. Has unionization, in your opinion, helped, hurt, or made no difference in the quality of public education in the U.S.?

	All Teachers %	Elementary Teachers %	High School Teachers %
Helped	49	48	50
Hurt	18	20	15
No difference	26	25	28
No opinion	7	7	7

The question:

Should public school teachers be permitted to strike or not?

	All Teachers %	Elementary Teachers %	High School Teachers %
Yes	63	58	70
No	26	30	20
No opinion	11	12	10

The question:

In case an agreement cannot be reached between a teacher union (or association) and the school board, would you favor or oppose a plan that would require the dispute to be settled by the decision of an arbitrator or panel acceptable to both the union and school board?

	All Teachers %	Elementary Teachers %	High School Teachers %
Favor	90	88	92
Oppose	3	4	2
No opinion	7	8	6

Teacher Opinion vs. Public Opinion

Teacher attitudes regarding the effects of unionization are in almost direct contrast to the attitudes of the general public. Whereas teachers — by a margin of almost 3 to 1 (49% to 18%) — feel that unions have helped the quality of American education, the public — by a margin of 2 to 1 — believes that unionization has hurt education.

Moreover, while teachers feel that they should have the right to strike (63% favor this right), 56% of the public *oppose* teacher strikes. The public agrees with the views of teachers concerning compulsory arbitration in settling disputes. Large majorities of teachers (90%) and of the public (79%) favor compulsory arbitration.

Effects of Unionization	**All Teachers** %	**U.S. Public (1981)** %
Helped education	49	18
Hurt education	18	37
Made no difference	26	33
No opinion	7	12

Teacher Strikes	**All Teachers** %	**U.S. Public (1981)** %
Yes, teachers should have the right	63	37
No, they should not	26	56
No opinion	11	7

How Much Do Teachers Contribute to Society?

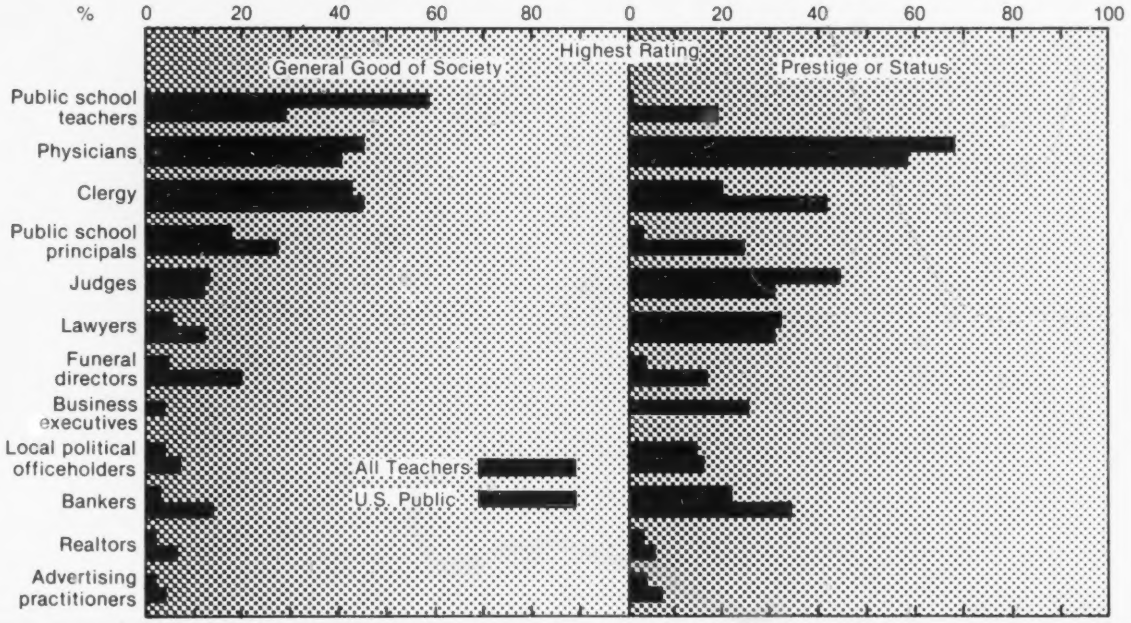


Chart by Mary Miller

Require Compulsory Arbitration	All Teachers	U.S. Public (1982)
	%	%
Favor	90	79
Oppose	3	7
No opinion	7	14

The Goals of Education

U.S. teachers were asked to rate the importance of certain goals of education on a scale of zero to 10. Fifty-six percent of teachers gave the highest rating (10) to two goals: developing good work habits, the ability to organize one's thoughts, and the ability to concentrate; and developing the ability to think — creatively, objectively, and analytically. Fifty-five percent of teachers gave a top rating to developing the ability to speak and write correctly; 53%, to developing the ability to use mathematics for everyday problems; and 51%, to encouraging the desire to continue learning as a lifelong process.

The highest percentage of the U.S. public (68%) gives a 10 to developing the ability to speak and write correctly. The second-highest percentage of the public (64%) gives the highest rating to developing standards of what is right and wrong.

The question:

> **Please rate the importance of each of the following possible goals of education on a scale of zero to 10. A zero means a goal is not at all important and should not be part of the public school program. A 10 means a goal is the most important goal — before all others. A rating between zero and 10 means you consider the goal to be somewhere in between in importance.**

	Highest Rating	
	All Teachers	U.S. Public (1984)
	%	%
To help develop good work habits, the ability to organize one's thoughts, the ability to concentrate	56	48
To develop the ability to think — creatively, objectively, analytically	56	51
To develop the ability to speak and write correctly	55	68
To develop the ability to use mathematics for everyday problems	53	54
To encourage the desire to continue learning throughout one's life	51	41
To encourage respect for law and order, for obeying the rules of society	46	52
To develop the ability to live in a complex and changing world	41	51
To prepare those who plan to attend college for college	36	46
To develop skills needed to get jobs for those not planning to attend college	34	54
To develop standards of what is "right and wrong"	33	64
To develop the desire to excel	32	51
To develop an understanding of democracy and to promote participation in the political process	31	33
To develop the ability to get along with different kinds of people	31	42
To develop respect for and understanding of other races, religions, nations, and cultures	30	39
To develop the ability to deal with adult responsibilities and problems, i.e., sex, marriage, parenting, personal finances, alcohol and drug abuse	28	46
To help students make realistic plans for what they will do after high school graduation	27	52
To develop an understanding about different kinds of jobs and careers, including their requirements and rewards	20	56
To gain knowledge and understanding of science and scientific facts	17	45
To gain knowledge of the important facts of history, geography, etc.	15	42
To develop an appreciation for and participation in the arts, music, literature, theater, etc.	14	35
To help students overcome personal problems	13	45
To develop the ability to understand and use computers	12	43
To promote physical development through sports programs	8	20
To help students get good/high-paying jobs	6	46
To develop an appreciation of the "good" things in life	6	32

Subject Requirements

One of the major recommendations of the National Commission on Excellence in Education was that significantly more time in high school be devoted to the traditional basics, English and mathematics, as well as to certain "new" basics, including science, computer science, foreign languages for the college-bound, and vocational training. Virtually all teachers feel that English, math, and science should be required for all students, both those who intend to go to college and those who do not.

However, teachers would distinguish between the college-bound and the non-college-bound in the number of years they would require of a given subject. For example, the average number of years of English that teachers would require for college-bound students is 3.8; the figure for non-college-bound students is 3.6. The figures for math are 3.4 years for the college-bound and 2.7 for the non-college-bound. For science, teachers would require 3.0 years for the college-bound and 2.2 years for the non-college-bound.

The question:

> **If you were the one to decide, which of the following subjects would you require every public high school student who *plans to go on to college* to take?**
>
> **What about those public high school students who *do not plan to go on to college* when they graduate? Which courses would you require them to take?**

	Should Be Required			
	For Those Planning to Go to College	Average Years Required	For Those Not Planning To Go to College	Average Years Required
	%	%	%	%
Mathematics	96	3.4	94	2.7
English	95	3.8	93	3.6
History/U.S. government	95	2.9	91	2.2

	Should Be Required			
	For Those Planning to Go to College %	Average Years Required %	For Those Not Planning To Go to College %	Average Years Required %
Science	95	2.8	90	2.4
Foreign language	77	2.1	28	1.4
Physical education	74	2.6	73	2.6
Health education	73	1.5	75	1.6
Business	63	1.5	80	2.1
Art	54	1.3	45	1.3
Music	49	1.3	42	1.3
Industrial arts/ homemaking	46	1.4	78	2.4

Teacher Opinion vs. Public Opinion

The public agrees with teachers about the importance of requiring high school students to take English and mathematics. More than 90% of teachers and of the public would require all students to take these subjects. Similar percentages of the public and of teachers would require high school students to take business, and a somewhat smaller percentage of the public than of teachers would require high school students to take history and science.

For all other subjects, however, a much smaller percentage of the public than of teachers endorses course requirements for either college-bound or non-college-bound students.

	Should Be Required			
	For Those Planning to Go to College		For Those Not Planning to Go to College	
	All Teachers %	U.S. Public %	All Teachers %	U.S. Public %
Mathematics	96	96	94	92
English	95	94	93	90
History/U.S. government	95	84	91	71
Science	95	84	90	61
Foreign language	77	57	28	19
Physical education	74	43	73	44
Health education	73	52	75	50
Business	63	68	80	76
Art	54	24	45	18
Music	49	22	42	18
Industrial arts/homemaking	46	37*	78	83*

---

*The U.S. public was asked about "vocational training."

Extending the School Day or Year

Some of the education reform reports have recommended extending the length of the school day, the length of the school year, or both, in order to provide more time for instruction. U.S. teachers oppose both of these recommendations by roughly the same margins — 72% to 24% in the case of lengthening the school day and 66% to 28% in the case of lengthening the school year.

By contrast, the U.S. public is only marginally opposed to lengthening the school day or school year. The public opposes extending the school day by a margin of 42% to 52%, and the public opposes extending the school year by a margin of 44% to 50%.

The question:

How do you feel about extending the school day by one hour in the school in which you teach? Aside from the question of teacher/staff compensation, do you favor or oppose this idea?

	All Teachers %	U.S. Public (1984) %
Favor	24	42
Oppose	72	52
No opinion	4	6

The question:

In some nations, students attend school as many as 240 days a year, as compared to about 180 days in the U.S. Aside from the question of teacher/staff compensation, how do you feel about extending the public school year in this community by 30 days, making the school year about 210 days or 10 months long? Do you favor or oppose this idea?

	All Teachers %	U.S. Public (1984) %
Favor	28	44
Oppose	66	50
No opinion	6	6

Sex Education

U.S. teachers overwhelmingly support sex education in both public high schools and public elementary schools. Almost nine out of 10 teachers (86%) feel that sex education should be part of the instructional program in the high schools; only 8% oppose the idea. Seventy-five percent of teachers favor including sex education in the elementary schools; only 18% oppose the idea.

However, teachers believe that different sexual topics are appropriate for different levels of schooling. For example, eight out of 10 teachers feel that the following topics should be covered in high school sex education classes: the biology of reproduction, venereal disease, and birth control. Smaller majorities feel that premarital sex, abortion, homosexuality, and the nature of sexual intercourse should be covered in high school classes. Other than the biology of reproduction, much smaller percentages of teachers feel that specific sexual topics should be covered in the elementary schools.

The question:

Do you feel the public high schools should or should not include sex education in their instructional program?

Do you feel the public *elementary* schools should or should not include sex education in grades 4 through 8?

	In High School %	In Elementary School %
Should	86	75
Should not	8	18
No opinion	6	7

The question:

Which of the following topics, if any, should be included for high school students?

Which of the following topics, if any, should be included for elementary school students?

	In High School			In Elementary School		
	Should %	Should Not %	No Opinion %	Should %	Should Not %	No Opinion %
The biology of reproduction	83	15	2	70	28	2
Venereal disease	83	15	2	40	50	10
Birth control	80	18	2	29	58	13
Premarital sex	68	24	8	21	65	14
The nature of sexual intercourse	62	28	10	24	63	13
Abortion	64	27	9	18	65	17
Homosexuality	55	31	14	15	68	17

☑ Teacher Opinion vs. Public Opinion ☑

Almost as large a percentage of the U.S. public (70%) as of U.S. teachers (86%) supports sex education as part of the high school instructional program. For elementary schools, the public is about evenly divided; 45% favor and 48% oppose sex education in the elementary schools. However, with regard to the specific topics to be included in sex education at both levels, the public is substantially less in favor of instruction in each of these areas.

Include Sex Education	In High School		In Elementary School	
	All Teachers %	U.S. Public %	All Teachers %	U.S. Public %
Should	86	70	75	45
Should not	8	22	18	48
No opinion	6	8	7	7

	Should Be Included in High School		Should Be Included in Elementary School	
	All Teachers %	U.S. Public %	All Teachers %	U.S. Public %
Sex education (in general)	86	70	75	45
The biology of reproduction	83	54	70	37
Venereal disease	83	59	40	23
Birth control	80	55	29	20
Premarital sex	68	42	21	18
The nature of sexual intercourse	62	37	24	16
Abortion	64	38	18	12
Homosexuality	55	32	15	10

Control of Instruction

U.S. teachers feel that they should have the most influence in deciding what is taught in the public schools in their communities. They feel even more strongly that they should have the most influence in the selection of books for classroom use and for school libraries.

For example, 33% of teachers feel that teachers should have the most influence in deciding what is taught; 19% say the school board, 17% say the state government, and 3% say the federal government. Only 2% say that parents should have the greatest influence in deciding what is taught.

Almost eight in 10 teachers (79%) feel that they should have the most influence in the selection of books for classrooms and school libraries. Only 4% say principals or school administrators, 3% say the school board, and 2% say the parents.

The question:

In your opinion, who should have the greatest

What Topics Should Be Included In Sex Education?

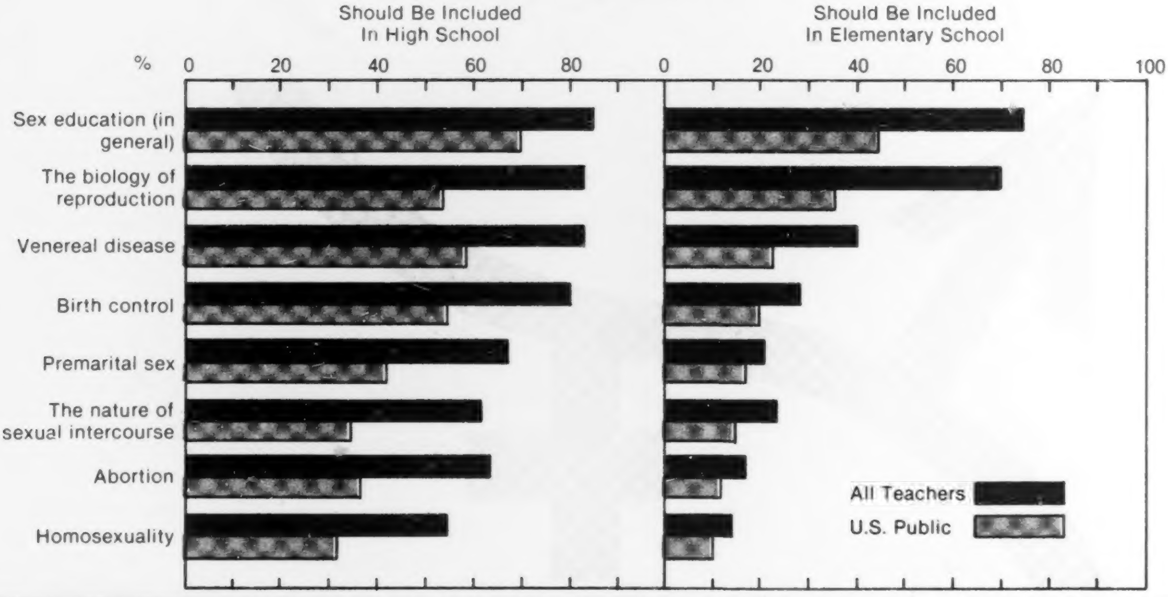


Chart by Mary Miller

influence in deciding what is taught in the public schools of your community?

	All Teachers %	Elementary Teachers %	High School Teachers %
Teachers	33	31	35
Local school board	19	17	20
State government	17	19	16
Federal government	3	2	3
Parents	2	2	2
No opinion	26	29	24

The question:

Who do you feel should have the most influence in the selection of books for use in public school classrooms and school libraries?

	All Teachers %	Elementary Teachers %	High School Teachers %
Teachers	79	76	82
Principals and school administrators	4	5	2
School board	3	2	3
Parents	*	*	1
No opinion	14	17	12

---

*Less than one-half of 1%.

☑ Teacher Opinion vs. Public Opinion ☑

Whereas teachers feel strongly that they should have the most say in determining what is taught in the public schools, the public feels that parents and local school boards should have the most influence in this area. Only 11% of the public agree that teachers should have the most influence; 27% say the school board, and 24% say parents.

In the selection of books for classrooms and school libraries, only 42% of the public feel that teachers should have the most influence. About one in five members of the public (18%) feel that parents should have the most influence in book selection.

Who Should Decide What Is Taught?

	All Teachers %	U.S. Public (1984) %
Teachers	33	11
Local school board	19	27
State government	17	17
Federal government	3	9
Parents	2	24
No opinion	26	12

Who Should Select Books for Classrooms And Libraries?

	All Teachers %	U.S. Public (1984) %
Teachers	79	42
Principals and school administrators	4	15
School board	3	13
Parents	*	18
No opinion	14	12

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*Less than one-half of 1%.

Ordering This Poll

The *Gallup/Phi Delta Kappa Poll of Teachers' Attitudes Toward The Public Schools* that appeared in the October 1984 issue and in this issue will be available as a separate publication in February. The price is $2 (PDK members $1.50). To order, write: Phi Delta Kappa, P.O. Box 789, Bloomington, IN 47402. Indiana residents add 5% sales tax.

Who Should Decide What Is Taught?

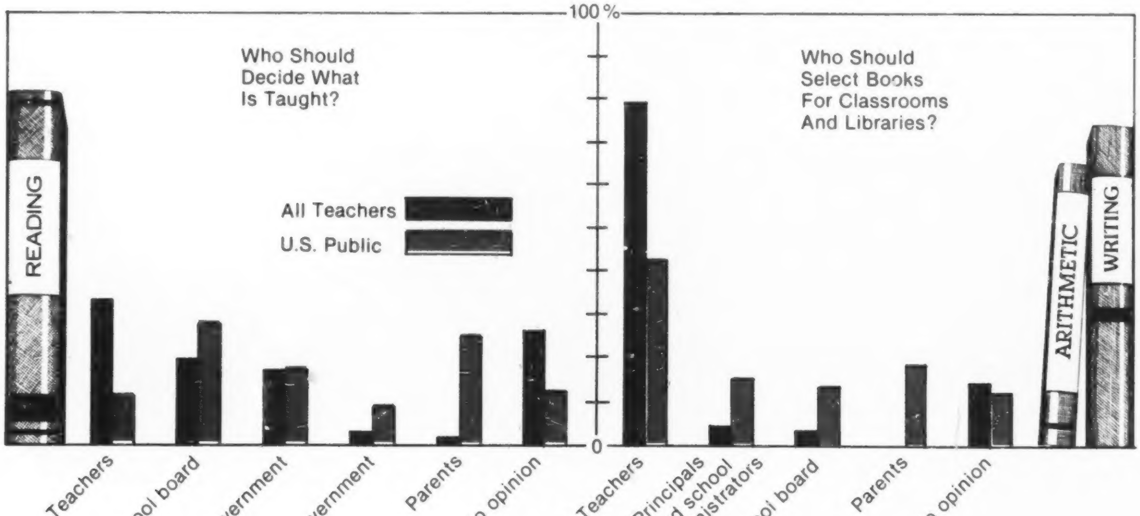

Chart by Mary Miller

Voices from the Attic: Canadian Public Opinion on Education

Illustration by Kevin Pope

The first-ever poll of Canadians' attitudes toward their public schools shows some remarkable similarities to Gallup polls conducted in the U.S. — and some surprising differences. Perhaps the most important finding is that schools must begin to communicate more effectively with their communities.

by G. E. Malcolm MacLeod

EDUCATORS IN CANADA look forward with great interest to the results of the annual Gallup Poll of the Public's Attitudes Toward the Public Schools. The September issue of the *Kappan*, which carries this poll, is well-thumbed by Canadian readers. The poll, with its trend questions and its items on current issues in education, is just one of the many ways in which education in Canada is influenced by research conducted in the U.S.

But to what extent are the findings of studies done in the U.S. valid and applicable in Canada? Clearly, Canada

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is similar to the U.S. in many ways. Though the Canadian population is only about one-tenth as large as that of the U.S., Canadians read many of the same publications and watch many of the same television programs as their neighbors to the south. The continental area of Canada is slightly larger than that of the U.S., but the two countries have shared many of the same geographical realities in the course of their development. Ninety percent of the population of Canada is located within 100 miles of the border we share with the U.S.; in fact, parts of Canada actually lie south of parts of California, and, to cross the river from Windsor, Ontario, to Detroit, Michigan, the traveler must go north, not south. In many ways, the organization and operation of Canadian and U.S. school systems are similar. Yet differences also exist between the two countries — differences in history, in tradition, in specific current problems.

It was against that background that the Canadian Education Association (CEA) decided to undertake a poll of Canadian public opinion on education. The CEA serves as a central source of information on educational matters throughout Canada. Since its establishment in 1892, the CEA has, of course, conducted a wide variety of research. And opinion polling in Canada, as in the States, has become a major enterprise over the years. But Canada never had a national poll of public opinion on the entire field of education until the 1984 CEA poll, which was conducted last March and April with the help of Canadian Gallup Poll Limited.[1] The report was released in September 1984 in the two official languages of Canada, English and French.[2]

The 1984 CEA survey drew on two sources: 1) a 1979 poll by the CEA that focused on the involvement of the Canadian public in educational decision making and 2) the more recent of the annual Gallup polls of attitudes in the U.S. toward public education. Although more general in scope than the 1979 CEA poll, the 1984 CEA survey included several items from that earlier study, in order to assess changes in Canadian public opinion over the intervening five years. For purposes of comparison, it also included several questions that parallel items in recent Gallup surveys on education in the U.S.

The 1984 CEA poll was designed to measure public opinion across Canada on a number of issues related to education. The data have been analyzed both to provide a "general reading" of the views of the national sample of 2,109 respondents and to focus on such specific variables as region, community size, age, gender, level of education, occupation, income, mother tongue, and number of children in school. We hope that the findings will enable us to deal better with current problems and to shape Canadian education more effectively for the future.

Some of the findings of the 1984 CEA poll will not surprise *Kappan* readers, but others will. The most irritating characteristic of such a survey — and its greatest strength — is the fact that it raises more questions than it answers. This is an inevitable outcome, particularly when pollsters attempt to cover a wide range of topics in relatively brief interviews.

Among the findings of the Canadian survey, these points stand out:

- Canadians clearly believe that schools are important.
- Canadians have a high degree of confidence in the schools' ability to serve the public's needs.
- When asked to grade their local schools, 48% of the respondents gave them a grade of A or B and only 3% gave them a grade of FAIL. The highest grades were awarded for buildings and equipment, curriculum, and books and instructional materials. The lowest grades were awarded for preparing students for jobs.
- Canadians were divided over whether the schools have improved since their own schooldays — 44% said that schools have improved, but 36% said that they have worsened. The curriculum and parental involvement in school activities were the two factors most frequently mentioned as improved; standards and teachers' interest in students were most frequently mentioned as having worsened.
- Most frequently mentioned as major problems confronting the schools were drugs, smoking, and alcohol (mentioned by 17.2% of all respondents) and lack of discipline (mentioned by 16.5%).
- Those respondents who had a child enrolled in school at some point during the three years preceding the poll were more likely than other respondents to express positive opinions about the schools.
- Nearly half of the respondents felt that the public has too little say in how the schools are run (a finding that remains relatively unchanged from the CEA poll of five years ago).
- Approximately two-thirds of the respondents (66%) said that they have a great deal or a fair amount of confidence in the ability of their local school boards to handle issues related to the schools (a finding that also remains relatively unchanged from the 1979 CEA poll, when 64.2% of the respondents expressed some degree of confidence in their school boards).
- Finally, the 1984 CEA poll indicated that Canadians are evenly divided on the question of whether they would or would not be willing to pay higher taxes to finance education. Forty-six percent said that they would be willing to pay higher taxes; 45% said that they would not.

WHAT SIGNIFICANCE will the findings of the 1984 CEA poll have for Canadian educators at all levels and for their professional organizations? What lessons can we learn? What facets of Canadian education should we be trying to change? What policies ought we to be developing for the future? In an effort to answer such questions, let us look more closely at the major findings of the survey.

Importance of Schooling to Future Success

A remarkable 79% of the respondents said that schools are extremely important to one's future success, and another 18% deemed schools fairly important. Only 3% said that schools are not too important, that schools are not important at all, or that they had no opinion. No other item in the CEA poll elicited such a strongly one-sided response. Moreover, respondents differed very little on this item by region, age, or any of the several other variables by which the data were analyzed.

Degree of Confidence in the Schools

Asked how much confidence they have in each of eight institutions, Canadian respondents put the schools at the head of the list. Seventy-five percent of all respondents said that they have a great deal of confidence or a fair amount of confidence in the schools. Local government and the church followed closely behind the schools — a finding similar to that of the 1980 Gallup survey of attitudes in the U.S. toward public education.

	Canada		U.S.	
	Rank (1984)	%* (1984)	Rank (1980)	%* (1980)
The schools	1	75.5	2	74
Local government	2	70.8	3	70
The church	3	70.7	1	82
Federal government	4	67.6	6	61
The courts	5	66.9	5	64
Provincial government	6	63.1	4	69
Big business	7	59.4	7	55
Labor unions	8	46.0	7	55

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*Respondents who said they have a great deal or a fair amount of confidence.

1984 Rating of the Public Schools

Asked to give the schools in Canada a grade of A, B, C, D, or FAIL, 48% of all respondents awarded the schools a grade of A or B, and only 3% gave the schools a FAIL. In the 1979 CEA survey, by contrast, 58% of all respondents gave the schools in Canada a grade of A or B, and 3% gave the schools a FAIL. The 10% decline since 1979 in the proportion of respondents awarding top grades to the schools does not mean that the schools received more low grades in the 1984 poll, however. Rather, the shift was to the "don't know" response category, which jumped from 6% in 1979 to 17% in 1984.

	National Totals %	Children In School %	No Children In School %
A rating	10	16	7
B rating	38	45	34
C rating	27	28	26
D rating	5	5	5
FAIL	3	3	4
Don't know	17	3	24

The CEA poll also asked respondents to grade several specific aspects of the schools. Canadians gave their schools the highest grades (68%, A or B) for buildings and equipment, followed by curriculum (55%, A or B) and books and instructional materials (51%, A or B). The lowest grades went to the schools' performance in preparing students for jobs (23%, A or B; 12%, FAIL).

Tax Increases to Support the Public Schools

Canadians were evenly divided on the question of whether they would (46%) or would not (45%) be willing to pay higher taxes in support of education. However, Canadians seem to be slightly more favorably disposed than U.S. citizens to the idea of paying higher taxes for education. The 1984 Gallup survey showed that 41% of U.S. respondents would be willing to pay higher taxes to finance education, while 47% of U.S. respondents would not. However, Canadians are less inclined than U.S. citizens to see lack of adequate financial support as a serious problem for the schools. One in seven U.S. respondents in 1984 mentioned lack of financial support

Canadians Express Level of Confidence in The Institutions That Serve the Public's Needs

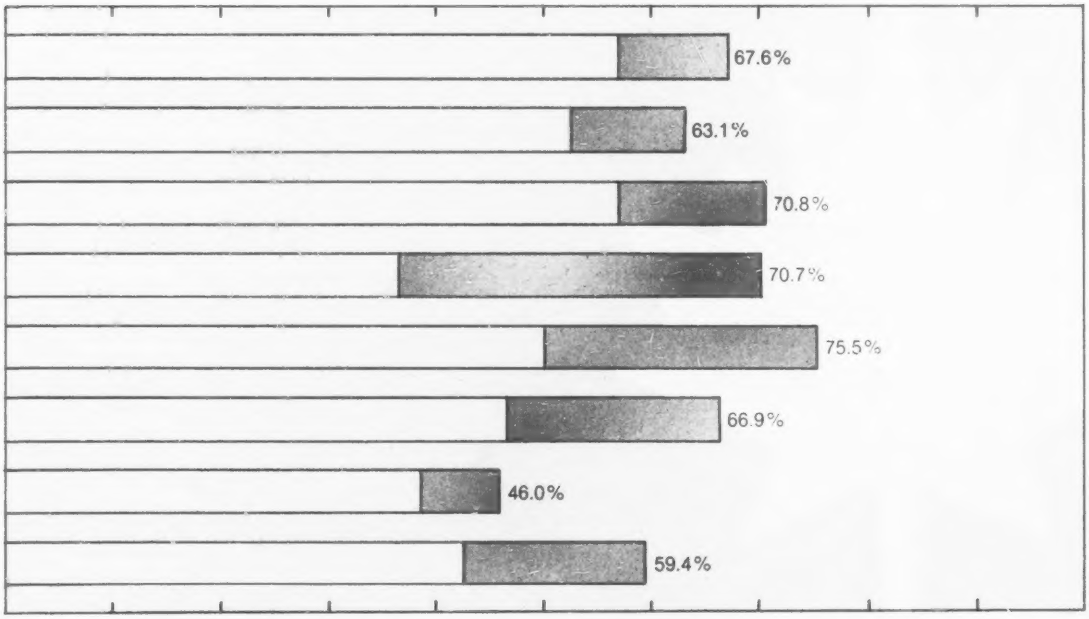

Chart by Mary Miller

as a serious problem, whereas only one in 14 Canadian respondents did so.

Major Problems Confronting the Public Schools in 1984

The CEA poll of public attitudes toward Canadian education included, verbatim, one question that has appeared annually in the Gallup survey of public attitudes toward education in the U.S.: What do you think are the biggest problems with which the public schools in this community must deal? Privately, many Canadians expected lack of discipline — the most frequently mentioned problem in U.S. polls for every year but one since 1969 — to be mentioned less frequently by Canadians as a major school problem.

This expectation proved correct. In each Gallup survey conducted during the past 10 years, approximately one-quarter of the U.S. respondents mentioned lack of discipline as a major school problem. By contrast, only 16.5% of the Canadians surveyed by the CEA in 1984 cited lack of discipline as a major problem for their schools.

The problem mentioned most frequently in Canada was drugs, smoking, and alcohol (cited by 17.2% of the respondents). In U.S. polls, the use of drugs was the second most frequently mentioned problem facing the schools in both 1983 and 1984 — mentioned by 18% of the respondents in each of those years.

"Forty-three percent of those questioned didn't know the answers."

Canadians in 1984 named pupils' lack of interest/truancy/bad attitudes as the third most serious problem (cited by 13.4%). By contrast, poor curriculum/poor standards ranked third in the U.S., mentioned by 14% of all respondents in 1983 and by 15% in 1984.

Curriculum concerns ranked fourth as a school problem in the 1984 CEA poll, cited by 10.6% of the Canadian respondents. In both 1983 and 1984 lack of proper financial support ranked fourth as a school problem in the U.S., mentioned by 13% of 1983 respondents and by 14% of 1984 respondents.

These findings suggest that a larger proportion of the U.S. population than of the Canadian population feels able to specify the problems confronting its schools and regards these problems as serious. More important, the problems that rank in first and second places in both the U.S. and Canada — lack of discipline and use of drugs — are not exclusively problems of education; rather, they reflect a general malaise that currently afflicts both the family and the larger society. Clearly, both Canadians and Americans have come to expect the schools to deal with problems that have baffled other institutions in the larger society.

The Biggest Problem with Which the Schools In Canada Must Deal

	National Totals %		National Totals %
Drugs, smoking, alcohol	17.2	Problems with school boards/organization of schools	2.6
Lack of discipline	16.5	There are no problems	2.6
Pupils' lack of interest/ truancy/attitudes	13.4	Declining enrollment	2.1
Curriculum problems	10.6	Distance to school/ busing	2.0
Teachers' lack of interest/quality of performance	8.0	Vandalism	2.0
Inadequate financial support	7.0	Too much free time/ distractions	1.5
Pupil/teacher ratio	6.3	Communication between teacher and pupil	1.2
Miscellaneous	6.1	Don't know/ no answer	19.1
Domestic problems	5.8		
Aspects of multiculturalism	2.8		

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*Figures add to more than 100% because of multiple answers.

Amount of Effort Demanded of Students

Asked to grade their local schools for the amount of effort that these schools demand of students, 9% of Canadians gave the schools a grade of A, 26% gave them a B, 26% gave them a C, 11% gave them a D, 5% gave them a FAIL, and 23% said that they did not know. Two somewhat comparable questions in the 1984 Gallup survey of U.S. attitudes — asking whether elementary students and high school students in the U.S. are made to work too hard in school and on homework or not hard enough — yielded the following results:

	Elementary School %	High School %
Too hard	5	4
About right amount	24	18
Not hard enough	59	67
Don't know	12	11

It seems fair to conclude that Canadians are relatively satisfied with the amount of effort that their schools demand of students. In the U.S., however, a large segment of the population believes that students are not made to work hard enough, either in elementary school or in high school.

Relationship of Attitudes to Knowledge About the Schools

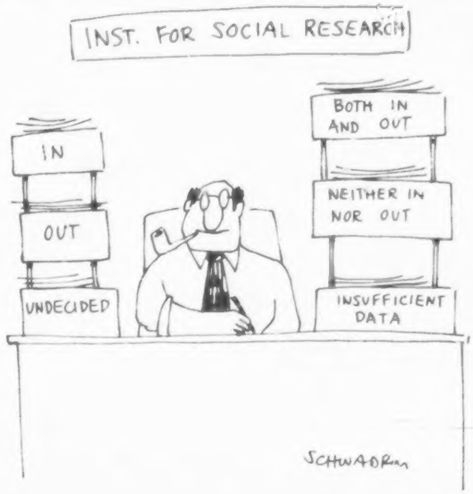
Respondents who had one or more children in school at some point during the previous three years tended to express more positive opinions about the schools than did respondents without children in school, according to the 1984 CEA poll. For example, 61% of those with children in school gave the schools a grade of A or B, whereas only 42% of those without children in school rated the schools this highly. The U.S. Gallup survey turned up similar findings. Perhaps when people know more about the schools, they are more favorably disposed toward them.

Areas in Which Canadian Schools Excel

The CEA poll asked respondents, "In your opinion, in what areas are the schools in this community doing a particularly good job?" A large number of respondents did not answer this question, but twice the proportion of respondents with children in school than of those without children in school ventured an opinion. Even for respondents with children in school, however, the percentage of "don't know/not stated" responses was one of the highest for any question in the survey.

	National Total %	With Children In School %	No Children In School %
Don't know	39.6	24.1	47.9
Not stated	2.7	1.9	3.1
Total	42.3	26.0	51.0

This finding is surely one of the most startling produced by the 1984 CEA poll. A staggering 42% of the respondents could not offer a single example of an area in which the schools are doing a particularly good job. Among respondents who did answer this question, 9% mentioned sports and athletics, 6% mentioned enrichment activities, and 4% mentioned the provision of high-quality education. But problem areas drew more frequent responses than did these three areas in which — at least according to a small number of respondents — the schools are excelling. Clearly, the schools need to communicate more effectively with the publics they serve.



Areas in Which Canadian Schools Are Excelling

	National Totals %*		National Totals %*
Sports/athletics	9.4	Teaching basics/ fundamentals	2.4
Enrichment activities, such as musical events, tours, library services	6.3	Pupil/teacher relations	2.2
Providing high-quality education	4.8	Arousing and maintaining pupil interest	2.0
Social activities/ clubs	4.6	Availability of computers	1.9
Teachers doing excellent work	4.2	Discipline	1.8
Good teaching methods/ standards	3.6	Developing values/ self-confidence	1.7
Range of programs/ sound curriculum	3.4	Teaching a second language	1.7
Involving parents/ community	3.1	Business/vocational programs	1.6
Preparing students for future occupations	2.7	Programs for the learning disabled/handicapped	1.1
Sound management overall, including managing budget compression	2.7	Miscellaneous	4.7
		None	5.8
		Don't know/ not stated	42.3

*Figures add to more than 100% because of multiple answers.

Conclusion

The 1984 Gallup survey of U.S. attitudes toward the public schools contained many items that were not included in the 1984 CEA poll, and vice versa. Obviously, an opinion poll must seek views on the issues that are of particular concern to its sponsors.

Where it has been possible to directly compare the findings of the most recent U.S. and Canadian polls, however, we have found that public opinion in the two nations tends to be similar on many points. Of course, there is always need for caution in attempts to apply the findings from a survey conducted in one country to an institution in a second country.

Perhaps the most important finding of the 1984 CEA poll is that schools must begin to communicate more effectively with their communities. Canadian educators should be heartened to know that the public believes education to be vital to national strength and individual success. As we continue to improve education in Canada, we must also strive to keep the public continually informed. Only through such openness will we be able to maintain and strengthen public confidence in and support for the schools.

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1. George Flower, dean of education at McGill University until his retirement and a former president of the CEA, served as project director. The Canadian Gallup Poll Limited conducted the interviews. To determine the questions to be asked, the CEA sought the advice of a steering committee, which included among its members several representatives of the CEA Advisory Committee on Educational Research.

2. The English version is titled *Speaking Out: The 1984 CEA Poll of Canadian Opinion on Education*. Single copies are available, at $8 each, from the CEA, 252 Bloor St. W., Toronto, Ont. M5S 1V5. ☐

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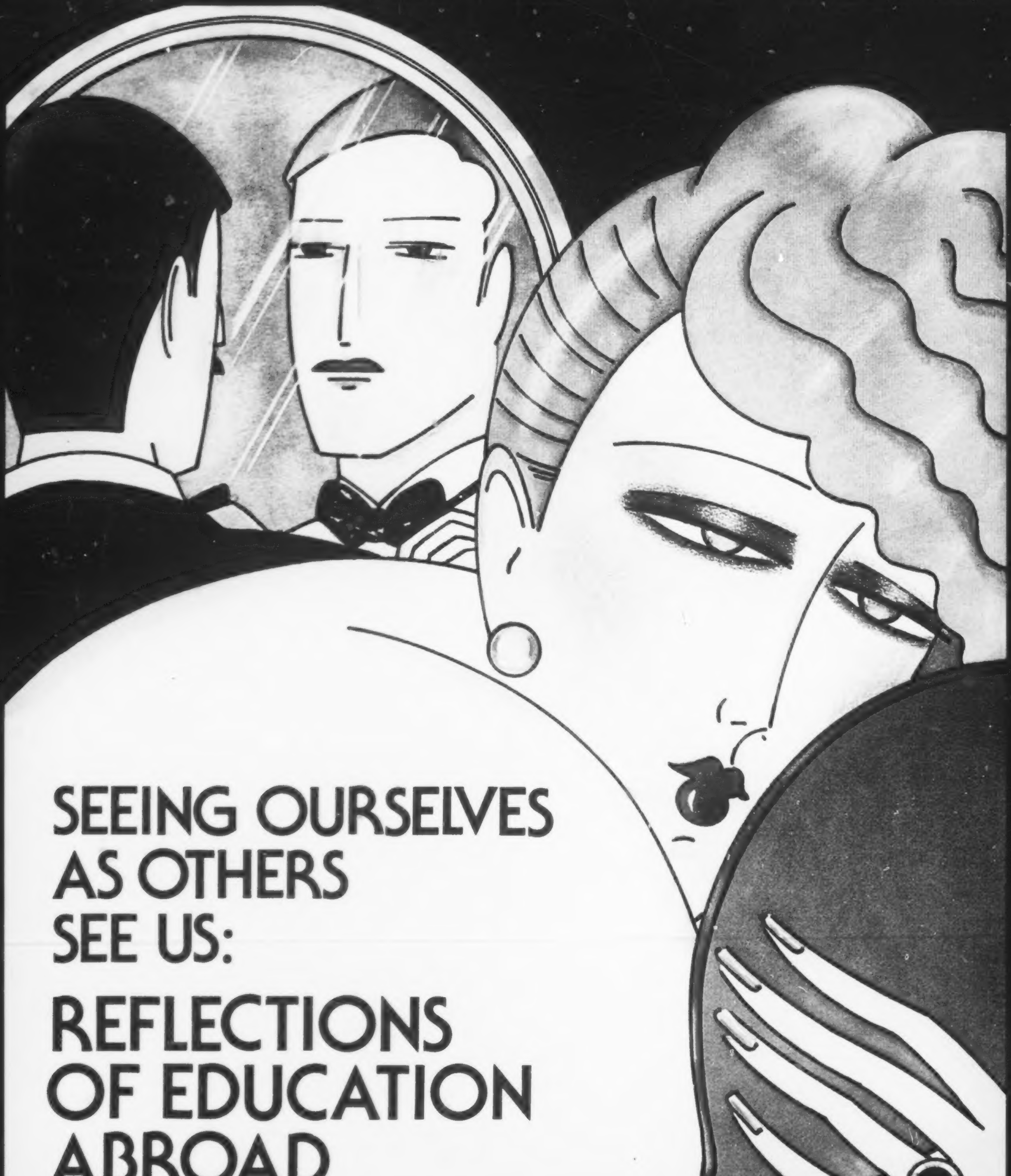
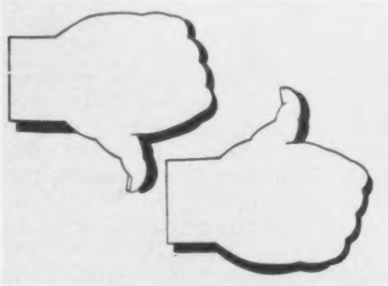
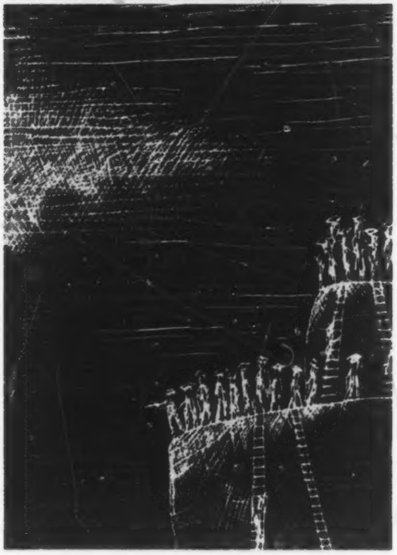


SEEING OURSELVES AS OTHERS SEE US:

REFLECTIONS OF EDUCATION ABROAD





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Cover Illustration: Lisa Henderling

International Comparisons Of Cognitive Achievement

by James S. Coleman

Major variations in national school systems can significantly affect students' achievement, says Mr. Coleman, who makes his point by using data from the International Association for the Evaluation of Educational Achievement.

MY FIRST SERIOUS attempt (with others) to study the effects of the schools on achievement was published in 1966 under the title, *Equality of Educational Opportunity*. That study examined the cognitive achievement at five grade levels of more than 700,000 students enrolled in schools representative of the whole breadth of U.S. elementary and secondary education.

To our great surprise, my colleagues and I found little relationship between school input and student achievement. Among all the factors that we measured, those with the largest effects on achievement had to do with students' family backgrounds. These factors included parents' educational levels and socioeconomic status, family size, and the amount of interest that parents took in their children's education and in the written word.

Another set of variables ran a poor second to family background but still exerted a stronger influence on students' achievement than school input: the family backgrounds of other students in the school. Children tended to perform better academically when they attended school with other students from educationally oriented home backgrounds. The effects on achievement of variations in the resources brought to schools by school boards, principals, and teachers were barely detectable.

At about the same time that we arrived at this conclusion, Gilbert Peaker reached a similar conclusion from an analysis that he conducted for the Plowden Report in England. Since then, many studies in the U.S. have provided evidence that variations in family background exert a stronger effect on students' achievement than do variations in school characteristics. And the results of the six-subject survey conducted by the International Association for the Evaluation of Educational Achievement (IEA) did not differ extensively; few, if any, identifiable inputs into schools could be found that brought consistently higher academic achievement.

More recent research findings indicate a somewhat different state of affairs. Stephen Heyneman and William Loxley have shown that, in less-developed countries, a reversal takes place, with school input affecting achievement appreciably and family background playing a much smaller role.[1] My own comparison of public and private high schools in the U.S. turned up achievement differences that cannot be explained by variations in students' family backgrounds or in their prior achievement. However, some indicators suggest that these achievement differences can be explained by variations in the academic demands that the two kinds of schools place on students and by variations in the schools' disciplinary standards. Andrew Greeley has pursued this finding further.[2] His data show that the academic demands placed on students by their schools strongly influence students' achievement levels.

ALL OF THIS is background to the international comparisons of cognitive achievement on which I will focus here. Such international comparisons were virtually impossible prior to the extraordinary studies conducted by the IEA. The IEA began in the Sixties with the testing of achievement in mathematics among 13-year-olds and high school seniors; it conducted a six-subject survey in the Seventies and has tested both mathematics and science achievement in the Eighties.

I intend to suggest here a way to use these IEA studies to learn more about the effects of variations in schooling on cognitive achievement. My use of the IEA data in this fashion involves a combination of three elements.

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Figure 1. Average Achievement Test Scores of 10-Year-Olds in 10 Countries — Science and Reading Comprehension

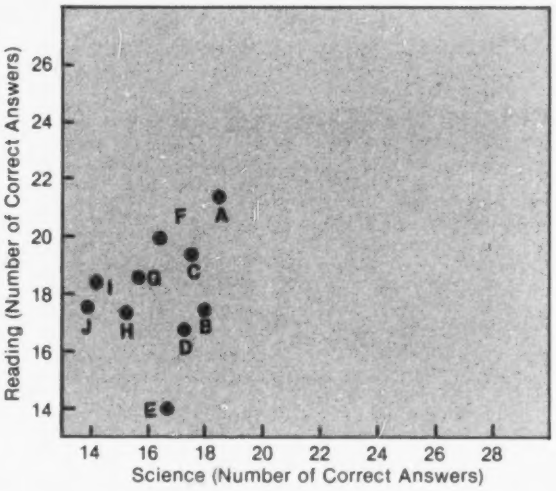
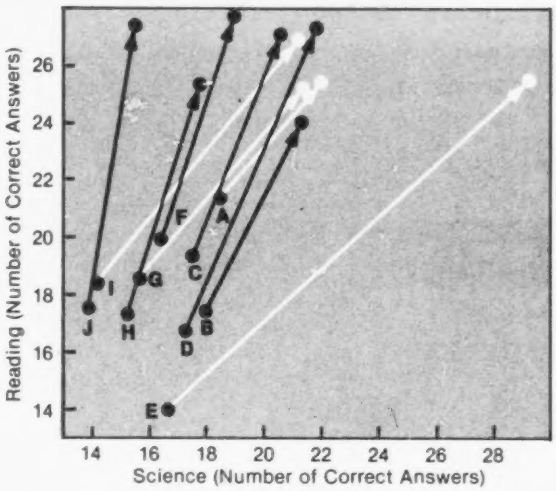


Figure 2. Average Achievement Test Scores of Both 10-Year-Olds and 14-Year-Olds in 10 Countries



- It involves looking for the effects of variations in schooling not by comparisons *within* a country (the principal way in which IEA data have been analyzed in the past) but by comparisons *between* countries.
- It involves using a younger cohort as a control for an older cohort, in order to examine what happens over a definable period of schooling. (I will use the 10-year-old cohort as a control for the 14-year-old cohort, in order to examine differences among countries in schooling at the upper elementary level. I will then use my findings to predict the differing outcomes of schooling that we can expect to find at the secondary level, and I will check my predictions by testing the achievement of students in the various countries during their final year of secondary school.)
- It involves looking at *relative* changes in two areas of achievement in different countries, in order to gain some idea of the relative emphasis that is placed on these two subjects. (The two areas on which I will focus are science achievement and reading comprehension.)

It is important to note that the analysis I am about to describe is not extensive, sophisticated, or highly technical. I have merely used the published data from two volumes of the six-subject IEA study: the volume on science achievement[3] and the volume on reading comprehension.[4]

None of the elements of data analysis that I am suggesting with this example are new for the IEA studies. In the first IEA study of mathematics achievement, Peaker carried out a between-country analysis,[5] and others have been conducted since that time. Younger cohorts have also been used before as controls for older cohorts, in order to obtain measures of growth.[6] Similarly, relative achievement in different subject areas has been examined previously.[7]

However, I maintain that the overall strategy — the combination of the various elements of the data analysis — *is* new. Moreover, this strategy facilitates learning new things about the functioning of educational systems and about the effects of that functioning on students who pass through those systems.

I WILL EXAMINE the use of this strategy in a specific case. In Figure 1 I have plotted the average achievement test scores of 10-year-olds in 10 different countries* in the areas of science and reading comprehension. These average scores indicate the number of items correctly answered out of 40, the total number of items included in each test. (The scores are adjusted to compensate for random guessing.) The data cover all countries — except two less-developed nations, Chile and India — that administered tests in both reading comprehension and science to 10- and 14-year-olds.[8]

The scores in Figure 1 show some scatter. Students in Country A scored the highest in both reading and science, but no single country's students scored the lowest in achievement in both areas. Students in Country E, who scored the lowest in reading comprehension, were a little above average in science. Meanwhile, students in Countries I and J scored especially low in science but showed themselves about average in reading comprehension. (It is important to note that, since the 10 countries have eight different languages, the tests of reading comprehension were necessarily different. Although the IEA

"No, Douglas, not in a nanosecond. Come to dinner now!"

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*The countries were Sweden (A), Flemish Belgium (B), Finland (C), the U.S. (D), Hungary (E), Italy (F), England (G), the Netherlands (H), Scotland (I), and French Belgium (J). Because of the language difference, French and Flemish Belgium were treated as separate countries.

went to great lengths to make the reading tests fully comparable, the scores derived from these tests are not as comparable as those derived from the science tests, which covered the same items in all countries.)

Figure 2 uses the scores of the 10-year-olds as starting points for 10 arrows, each of which ends at a point representing the achievement of 14-year-olds in the same country.[9] In all the countries but two, essentially the entire group of 14-year-olds was still in school at the time of testing. In those two countries, 83% and 55% of all 14-year-olds were still in school when the testing took place.

The test scores plotted in Figure 2 do not represent performances on the *same* items by 10- and 14-year-olds. The science test for 14-year-olds consisted of 80 items – twice as many items as were included in the reading test for 14-year-olds and in the reading and science tests for 10-year-olds. Thus the data do not allow any conclusions regarding absolute levels of cognitive growth. Relative growth in the two subjects can be examined, however.

What is striking about Figure 2 are the two different directions taken by the arrows. The arrows for Countries A, E, G, and I are nearly parallel with one another – heading off toward the right, which indicates a higher ratio of cognitive growth in science to growth in reading comprehension. The arrows for Countries B, C, D, F, H, and J are also nearly parallel with one another, but their steeper slope shows a lower ratio of growth in science to growth in reading comprehension than was true for the first set of countries. There are also differences in the overall amount of growth. Country A has the shortest arrow, and Country E has by far the longest. By the time students are 14 years of age, variations in cognitive growth in science have produced a much wider variation in achievement among countries than is true for 10-year-olds. However, the variation among countries in reading achievement is much *less* at age 14 than at age 10.

The striking differences between the two sets of countries, shown by the directions of the arrows in Figure 2, suggest that education between the ages of 10 and 14 differs in some respects for the two sets of countries. The schools in Countries A, E, G, and I appear to be concentrating on science, while those in Countries B, C, D, F, H, and J appear to be focusing on reading comprehension – or, perhaps, more generally on verbal skills or on humanistic education.

What other indicators would provide more evidence? One such indicator is the variation *within* a country in achievement in the subject that appears to be taught more intensively. If the schools are really teaching the subject more intensively, we would expect to find an increased spread among students' test scores in that subject, since some students would progress very rapidly and others would not.

The spread among test scores of 14-year-olds in a given subject can be measured by comparing the standard deviation of those test scores to the standard deviation of the test scores of 10-year-olds in the same subject. (The 10- and 14-year-olds who were tested by the IEA are representative samples of their age groups except in Country E, since nearly all students are still in school at those ages. However, this is not true of the other population tested by the IEA, i.e., students in the last year of secondary school. Countries vary widely in the fraction of the cohort that remains in secondary school until graduation – and thus takes the IEA test. Therefore, we could not compare the standard deviation of scores of, say, 14-year-olds with the standard deviation of scores of secondary school seniors, since the latter constitute differently selected fractions of the cohort in different countries.)

The essential difference in schooling between the two sets of countries appears to be in the intensity with which science is taught.

Table 1 shows the standard deviations of scores of 14-year-olds as multiples of the standard deviations of scores of 10-year-olds. On the left side of that table are the data for Countries B, C, D, F, H, and J (which I will call Group 1) – the countries with a lower ratio of cognitive growth in science to growth in reading. On the right side of Table 1 are the data for those countries that I will call Group 2 (A, E, G, and I) – the countries with a higher ratio of cognitive growth in science to growth in reading.*

The standard deviations of scores of 14-year-olds in reading are only a little greater than those of 10-year-olds, for both sets of countries. In other words, my conjecture that the schools in Group 1 countries are bringing about differential performance in reading comprehension or in general verbal skills through focusing on this area does not seem to be true.

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*The countries in Group 1 are Belgium (both French and Flemish), Finland, the U.S., Italy, and the Netherlands. The countries in Group 2 are Sweden, Hungary, England, and Scotland.

Table 1. Standard Deviations of 14-Year-Olds' Scores In Each Country, Relative to Those of 10-Year-Olds

	Group 1 Countries in which growth in science is low, relative to that in reading comprehension		Group 2 Countries in which growth in science is high, relative to that in reading comprehension	
Country	$\frac{\text{SD 14}}{\text{SD 10}}$ Reading	$\frac{\text{SD 14}}{\text{SD 10}}$ Science	$\frac{\text{SD 14}}{\text{SD 10}}$ Reading	$\frac{\text{SD 14}}{\text{SD 10}}$ Science
A			1.03	1.60
B	1.05	1.26		
C	1.01	1.29		
D	1.00	1.25		
E			1.01	1.59
F	1.06	1.19		
G			1.03	1.66
H	1.07	1.32		
I			1.04	1.69
J	0.94	1.24		

Table 2. Average Science Achievement Scores of Top Science Students in Group 1 Countries and in Group 2 Countries

	Country	Score
Group 2	G	51.6
	I	50.7
	A	49.5
	E	48.0
Group 1	H	47.1
	C	46.0
	D	45.8
	B	39.8
	F	38.2
	J	36.2

However, the story with regard to science scores is very different. Those countries with *high* ratios of growth in science to growth in reading comprehension show much greater increases in the spread of students' science scores between the ages of 10 and 14 than do countries in which the ratio of growth in science to growth in reading is lower.

This suggests that the essential difference in schooling between the two sets of countries – for 10- through 14-year-olds, at least – is not in the intensity with which reading and verbal skills are taught, but in the intensity with which science is taught. The countries in Group 2 apparently begin to teach science intensively to at least some of their students by the time the students are 14 years old. The outcome seems to be twofold: the science scores of 14-year-olds in those countries increase overall, and the spread among test scores of 14-year-olds within each of those countries increases.

This conjecture is borne out by the overall increase in science scores and by the increase in spread among students' science scores in two countries, West Germany and Japan, that are not included in the analysis above. (These two countries administered the science test, but not the reading test, to their 10- and 14-year-olds.) In these two countries, the average growth in science was 8.8 and 9.2 respectively – comparable to the average growth of 7.2 that characterized Group 2 countries (whereas Group 1 countries produced an average growth of only 2.7). The standard deviations of the scores of 14-year-olds were also high in these two countries compared to the standard deviations of the scores of 10-year-olds. The standard deviations of the scores of 14-year-olds, expressed as multiples of the standard deviations of scores of 10-year-olds (as in Table 1 for the original 10 countries), are 1.55 and 1.92 for these two countries not included in the original analysis. The standard deviation in Japan, with exceptionally high growth in science, nearly doubled.

A further question comes immediately to mind: What is the later impact on students' achievement of this early focus on science in the schools? Group 2 countries apparently begin to concentrate the attention of at least some of their students on science by age 14, while Group 1 countries do not. Do the Group 2 countries produce an elite corps of students who, by the time they graduate from secondary school, are more proficient in science than their counterparts in Group 1 countries?

The answer appears in Table 2, which lists the average science achievement scores of the top 1% of science students in both Group 1 and Group 2 countries. As Table 2 shows, the scores of the top science achievers in *all* the Group 2 countries are higher than the scores of the top science achievers in *any* Group 1 country.* Clearly, the early focus on – or, perhaps, specialization in – science in the Group 2 countries produces a higher-achieving scientific elite by the end of secondary school. This is a later consequence of a difference that can already be observed when students are only 14 years of age.

The rather simple analysis that I have carried out here suggests that the IEA data have more potential for providing information on the effects of schooling than has yet been realized. The very design of the IEA project – the fact that it covers educational systems that exhibit a greater range of variation than schools within a single country ever do – makes IEA data a potentially rich source of information on the effects of schooling. Major variations in school systems can significantly affect students' achievement – but to find these major variations, it is necessary to break away from the country-by-country analyses that have typified IEA reports to date.

SCHOOL BUS STOP
Campbell

"We're getting a new computer in our class today. I hope I'm the one it replaces."

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*West Germany, one of the two countries that I could not include in my analysis (because it did not administer the reading test), *did* administer the upper-secondary science test. As mentioned earlier, growth in science achievement and dispersion in West Germany are like the countries of Group 2. At the end of secondary school, the average score of the top 1% of science achievers in this country was 45 – below one Group 1 country and above five Group 1 countries.

1. Stephen Heyneman and William Loxley, "The Effect of Primary School Quality on Academic Achievement Across Twenty-Nine High- and Low-Income Countries," *American Journal of Sociology*, vol. 88, 1983, pp. 1162-94.

2. Andrew Greeley, *Catholic Schools and Minority Students* (New Brunswick, N.J.: Transaction Books, 1982).

3. L. C. Comber and John P. Keeves, *Science Education in Nineteen Countries* (Stockholm: Almqvist and Wiksell, 1973).

4. Robert L. Thorndike, *Reading Comprehension Education in Fifteen Countries* (Stockholm: Almqvist and Wiksell, 1973).

5. Torsten Husén, ed., *International Study of Achievement in Mathematics, Vols. 1 and 2* (Stockholm: Almqvist and Wiksell, 1967).

6. See, for example, Thorndike, p. 145; and Comber and Keeves, p. 120.

7. See, for example, Thorndike, Ch. 10, which compares data on reading comprehension, science achievement, and literature achievement from the six-subject IEA study.

8. The scores are taken from Comber and Keeves, p. 159, Table 7.2; and Thorndike, p. 124, Table 8.1.

9. The data are taken from Comber and Keeves, p. 159, Table 7.2; and Thorndike, p. 125, Table 8.2. ☐

Mathematics Achievement In U.S. Schools: Preliminary Findings From the Second IEA Mathematics Study

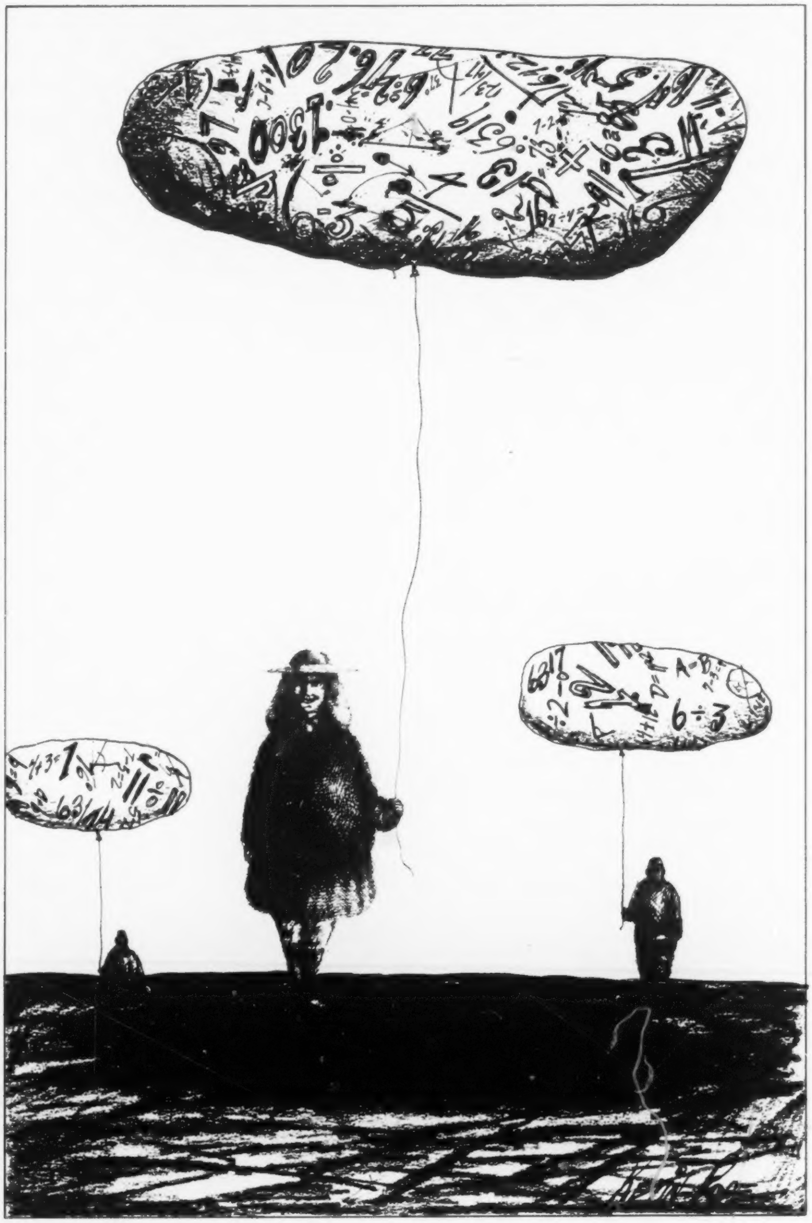

Illustration by Kevin Pope

by Kenneth J. Travers and Curtis C. McKnight

"More of the same" may not be the kind of reform of secondary mathematics that U.S. students need, say the authors. What to offer and how to teach it are the major issues that confront reformers.

THE NATIONAL spotlight currently focused on the quality of education in the U.S. has heightened interest in the cross-national studies of the International Association for the Evaluation of Educational Achievement (IEA). Now in their second generation, these studies began some 20 years ago with the first IEA study of mathematics, carried out in 12 countries, including the U.S.[1] That study was a forerunner of an even more ambitious round

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of surveys conducted by the IEA in the late 1960s and early 1970s. These surveys gathered empirical data on achievement from 21 countries in the fields of literature, science, reading, civic education, and English and French as foreign languages.

The first round of the IEA studies received considerable public attention in the U.S. and in many other countries. For example, when the first mathematics study was released, daily newspapers in major cities carried front-page stories and editorials contrasting the accomplishments in mathematics of students in certain countries (notably, Japan) with the relatively poor showing of U.S. students.

However, the IEA studies are *not* designed to be educational Olympiads. Indeed, a recent article by Torsten Husén of Sweden, one of the founders of the IEA, points to the limitations of cross-national comparisons of educational achievement.[2] Husén argues that the highly industrialized countries of western Europe, though in many ways comparable to the U.S., have basically different school systems. For example, the centralized educational systems of Europe, with their classical curricula designed to prepare students for universities, have vastly different objectives from those of U.S. schools, which are locally controlled, have diverse curricula, and are relatively less selective.

Despite their limitations, however, international studies of educational achievement *do* serve important purposes. For example, the international studies compile "benchmark" data on a variety of aspects of education, including achievement data (perhaps the most revealing at the item level), attitude data, and information about such issues as the use of calculators. This information is of use to policy makers and curriculum specialists at national, state, and local levels.

The Second International Mathematics Study, which surveyed 22 countries,* focused on two populations: 1) all students in the grade in which the majority of students have attained the age of 13 by the middle of the school year and 2) all students who are in the normally accepted terminal grade of secondary school *and* who are studying mathematics as a substantial part (approximately five hours per week) of their academic programs.

In the United States, the second population was taken to mean those students who were in college-preparatory mathematics courses requiring as prerequisites at least two years of high school algebra and one year of high school geometry. Although such students were typically in the 12th grade, the definition did allow inclusion in the target group of those students in the 11th grade (and lower) who had moved through the standard sequence of courses more quickly than the average student.

The Study added two aspects of data collection not previously available on a national scale. For a subset of seven countries (Flemish Belgium, France, Japan, New Zealand, Thailand, the United States, and Canada – both British Columbia and Ontario), a "classroom process" component of the Study was carried out among the 13-year-olds. This consisted of a pretest and detailed questionnaires on instructional practices. Thus, for this subgroup of countries, data are available on how much mathematics was learned during the school year and on how the mathematics that was taught during that year was presented by classroom teachers.

The eighth-grade mathematics curriculum in the U.S. resembles a program of studies for the end of elementary school.

THE REPORTING phase of the Study has now begun, and individual countries are releasing reports on their participation in the Study. The international reports are scheduled to be published in early 1986 by Pergamon Press of London. Even though the international reports are not yet available, the *U.S. Summary Report* offers useful information on the teaching and learning of mathematics in U.S. schools, as well as some preliminary indicators of how the U.S. stands in relation to other countries.

The timing of the Study was fortunate. Much has taken place since the first study was conducted in 1964. In the early 1960s curriculum reform in mathematics was just getting under way. Since then, considerable curriculum development has taken place, and varieties of educational technology have appeared. Now that we are making decisions about directions for the 1990s and beyond, it's a good time to get another measure of our progress in relation to other countries.

The planners of the Second IEA Mathematics Study had the broad concerns of mathematics educators clearly in mind when they formulated the project. Plans for the Study were developed at an international meeting held at the University of Illinois in 1976. These concerns clustered in three main areas: the curriculum, the

Glasbergen

"I've dedicated my life to mathematics. I've been teaching for (9+3)×2÷4x5 years."

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*The countries that took part in the Second International Mathematics Study were: Australia, Belgium (French and Flemish), Canada (British Columbia and Ontario), Chile, England and Wales, Finland, France, Hong Kong, Hungary, Ireland, Israel, the Ivory Coast, Japan, Luxemborg, the Netherlands, New Zealand, Nigeria, Scotland, Swaziland, Sweden, Thailand, and the United States.

classroom, and the student. Or, put more formally, the *intended* curriculum, the *implemented* curriculum, and the *attained* curriculum.

The *intended* curriculum is reflected in curriculum guides, course outlines, syllabi, and textbooks adopted by school systems. In most countries, national curricula emanate from a ministry of education or from a similar body. In the U.S., of course, such statements of intended goals and curricular specifications come from state departments of education and from local districts. Thus it is considerably more difficult to describe the intended curriculum for the U.S. than for almost any other country that took part in the IEA Study.

The *implemented* curriculum focuses on the classroom, where the teacher interprets and puts into practice the intended curriculum. Teachers exercise their own judgment in translating curriculum guides and adopted textbooks into programs for their classes. Hence, their selection of topics or patterns of emphasis may not be consistent with the intended ones.

To identify the implemented curriculum, a number of questionnaires were developed for classroom teachers to complete. For example, teachers were asked whether or not they had provided instruction for each of the items on the achievement tests. They were asked questions about such topics as the use of calculators in their classes. They were also asked to provide detailed information on the number of class periods that they devoted to specific topics and subtopics and on how they presented and interpreted them to their classes.

For example, one of the questionnaires dealt with the ways a teacher could interpret fractions. These interpretations ranged from the concrete (fractions as measurements or fractions as regions) to the abstract (fractions as decimals or fractions as quotients). The questionnaire asked teachers whether they interpreted fractions for their students in one of 10 ways and whether they used a particular interpretation occasionally or frequently. Such highly specific information on classroom presentations, coupled with similarly detailed information on instructional strategies, permits us to draw a rather comprehensive picture of *what* and *how* mathematics has been taught to specific populations.

On the use of calculators, we found that, in the year in which the data were collected (1981-82), calculators had found their way into relatively few eighth-grade mathematics classrooms. In about one-third of the classrooms, calculators were not even allowed. Another one-third reported that they were never used. In most of the remaining one-third, calculators were used only one period or less per week.

In the 12th grade, calculators were more commonplace. About one-third of the teachers reported using calculators two or more periods per week, almost another one-third reported using calculators one period or less per week. Only 10% of teachers reported that their students were not allowed to use calculators at all. The most commonly reported instructional uses of calculators in the 12th grade were checking work, doing homework, and solving problems in class. About 50% of 12th-graders were allowed to use calculators on tests.

The *attained* curriculum – what students have learned as measured by tests and questionnaires – was the third (and most familiar) component of the Study. Extensive achievement tests were designed to assess student knowledge and skills in areas of mathematics that were designated as important and appropriate for each population. The "fit" between these tests and the actual curricula in individual countries may vary considerably, because the tests contain items that are less appropriate in some countries than in others and because they could not possibly contain an adequate range of items to *fully* represent all curricula in all countries. This reduces the accuracy of cross-national comparisons, and this limitation provides another argument against interpreting the Study as an international contest.

The student outcome measures also included a number of opinionnaires and attitude scales. These were devised to elicit students' views on the nature, importance, ease, and appeal of mathematics in general and of selected mathematical processes.

Each country taking part in the Study drew a national probability sample in accordance with an international sampling design. The procedures were monitored by an international sampling referee. In the case of the Second Mathematics Study, Malcolm Rosier of the Australian Council for Educational Research served as the sampling referee. The total U.S. sample consisted of students and teachers from approximately 500 classrooms in public and private schools across the country.

The students then took internationally developed mathematics achievement tests at the beginning of the 1981-82 school year; attitude and general background questionnaires were administered at the same time. Some 7,000 eighth-grade students and some 4,500 12th-grade students from approximately 250 public and private schools took part, along with their teachers.

EIGHTH-GRADE FINDINGS

Intended curriculum. From the perspective of other nations, the eighth-grade mathematics curriculum in the U.S. looks more like a program of studies for the end of elementary school than for the beginning of high school. Our curriculum appears to be dominated by topics in arithmetic and measurement rather than by the study of algebra and geometry.

Implemented curriculum. One clear finding of the Study is that there is great diversity in the mathematics taught in U.S. schools at the eighth-grade level. Four distinct types of classes were identified: 24 remedial classes, 26 enriched classes, 31 algebra classes (studying only algebra for a full year and using an algebra text), and 155 "typical" classes.

What mathematics content was taught in these classrooms? For each of the 180 items on the achievement tests, teachers were asked to indicate whether the content needed to correctly respond to an item was taught during the eighth grade, was taught in a previous year, or was not taught at all. Table 1 presents the content coverage during eighth grade for five topics (groups of test items) and four class types.

Notice that typical and enriched classes covered a large portion of the content in all areas. Enriched classes covered more than typical classes in algebra, geometry, and measurement. Remedial classes emphasized arithmetic and covered less algebra and geometry. The algebra classes covered a considerable amount of algebra (actually more than was on the test), but they covered little else. No class covered much of the geometry that was on the international test, which included transformational geometry (not usually taught at all in the U.S.) and spatial visualization.

The detailed classroom-process questionnaires showed that the teaching of

Table 1. Percent of Items Taught During Eighth Grade

		Class Type			
Content Area	**N**	**Remedial**	**Typical**	**Enriched**	**Algebra**
Arithmetic	62	76	80	84	42
Algebra	32	37	64	80	86
Geometry	42	25	41	54	24
Measurement	26	53	64	75	20
Statistics	18	48	58	59	15
Overall	180	51	64	72	40

common and decimal fractions tended to be symbolic and formal rather than intuitive and concrete. The teaching of ratio and percent also tended to be formal. When teachers presented interpretations of these concepts, they were typically formal as well. For example, ratio was often interpreted as a fraction, but fractions were themselves presented through formal and symbolic means. However, integers were often introduced through the number line and through physical situations. Still, when they presented operations using integers, teachers relied on giving rules.

Topics in geometry were typically introduced by a statement of definitions and properties, rather than by intuition or informal explanation. For example, the property of the sum of the angles in a triangle was usually taught by presenting and demonstrating it, or by having students find the sum of the measures of the angles in various triangles. Paper folding and other concrete activities were not emphasized.

In geometry, teachers' expressed opinions were greatly at odds with their reported practices. Although teachers affirmed that intuitive approaches are most meaningful for students, that concrete models and aids have instructional value, and that spatial visualization is important, they reported that they used primarily formal, "tell and show" approaches to instruction. Data on how students spend their time appear to support this finding. The majority of student time in mathematics classes was reported to be spent in listening to teacher presentations, doing seatwork, or taking tests.

Table 2. National Estimates of Mean Scores In Eighth-Grade Classes

Content Area	N	OTL*	Mean Scores Pretest	Mean Scores Posttest	Gain
Arithmetic	62	87	42	51	+ 9
Algebra	32	69	32	43	+11
Geometry	42	44	31	38	+ 7
Measurement	26	70	35	42	+ 7
Statistics	18	73	53	57	+ 4

*OTL = opportunity to learn.

Figure 1. Sample Eighth-Grade Algebra Item

A bowling ball travels four meters per second. The distance in meters traveled in t seconds is given by $d = 4t$. In the table below x is equal to:

t	d
0	0
1	4
2	8
3	x
4	16

A 6

B 10

C 12

D 14

E None of these

	% Correct	
OTL*	Pretest	Posttest
75	60	71
International Median		67

*OTL = opportunity to learn.

Table 3. International Comparisons of Eighth-Grade Achievement

Content Area	N	U.S. Mean (% correct)	25th %ile	International Median	75th %ile
Arithmetic	62	51	45	51	57
Algebra	32	43	39	43	50
Geometry	42	38	38	43	45
Measurement	26	42	47	51	58
Statistics	18	57	52	57	60

Attained curriculum. Table 2 presents a summary of mean eighth-grade achievement scores for each of the five content areas – arithmetic, algebra, geometry, statistics, and measurement. Separate scores for both the pretest and posttest are listed.

The column headed OTL (opportunity to learn) lists the average rating by teachers of the percent of content that had been taught either before or during the year. This figure gives some indication of how well the tests matched the U.S. curriculum. These ratings represent a sort of "ceiling" on how well U.S. students can be expected to do. Notice that geometry has the lowest OTL score.

Figure 1 shows a sample test item from the algebra portion of the international test for eighth-graders. The OTL rating of 75 indicates that three-fourths of the teachers in the sample reported that their classes had been taught the mathematics needed to answer this item correctly either during the eighth grade or earlier. Sixty percent of students nationwide answered this question correctly at the beginning of the year, and 71% answered it correctly at the end of the year. Internationally, the median posttest score was 67% correct.

Table 3 compares mean end-of-year achievement for the U.S. eighth-grade sample with the 25th percentile, median, and 75th percentile scores of all participating countries combined. In algebra, arithmetic, and statistics, the U.S. performed at about the international median. In geometry and measurement, the U.S. performed at about the 25th percentile. In no case was the U.S. performance above the international median.

12TH-GRADE FINDINGS

Intended curriculum. In the 12th grade in 1981-82, we estimated that about 12% of our students were enrolled in college-preparatory mathematics courses. The curriculum in these classes is predominantly composed of topics regarded as preliminary to the study of calculus, such as trigonometry, analytic geometry, and elementary functions.

Although calculus itself may be taught in the 12th grade in U.S. schools, it does not receive as much emphasis in the U.S. as it does in many other nations –

notably, Japan and several European countries. Moreover, the proportion of U.S. students enrolled in full-fledged calculus courses is lower than in most other countries taking part in the Study. This is true even when the relatively lower retention rates of school systems in other countries are taken into account. Although other countries may keep smaller proportions of students in school through the end of the secondary program, those students who are still studying college-preparatory mathematics are almost universally studying calculus.

The data are not yet final and will be made available in the international reports. However, we are estimating that about 2% to 3% of U.S. students graduate from high school with a solid introduction to calculus, while in Europe at least 5% to 6% of students who have completed a college preparatory mathematics program have received a solid introduction to calculus. In Japan, that figure rises to about 12%.

Implemented curriculum. Two types of 12th-grade classes were identified: calculus classes (defined as those that followed the College Board's Advanced Placement calculus program) and precalculus classes that studied various combinations of trigonometry, analytic geometry, elementary functions, and introductory topics in calculus. In the national sample of 237 classes, 46 were defined as calculus classes and 191 as precalculus classes.

Table 4 shows the content that teachers reported had been covered either during the 12th grade or earlier. The seven content areas are those used on the subtests of the international test. Note that teachers estimate that the precalculus classes have covered about the same amount of content as the calculus classes in the first four areas (either during or prior to the 12th grade). The calculus classes show a more specialized pattern in the last three content areas, particularly in the study of elementary functions and calculus.

The teachers noted that most of the emphasis in teaching analytic geometry was placed on developing students' two-dimensional skills, especially in conic sections and curve sketching. Very little, if any, work was done on solid analytic geometry. In teaching trigonometry, little time was devoted to inverse functions, their graphs, or the relationships involved. The same pattern of relative neglect holds for trigonometric relationships involving representations of complex numbers or the use of polar coordinates.

As was the case in analytic geometry, material dealing with three dimensions was rarely taught in calculus. The emphasis was on the development of limits, differentiation, and integration through logarithmic and exponential functions. Teachers reported little work involving multi-variable calculus, nor was there much emphasis on special techniques of integration, numerical integration, number series, or related topics.

The textbook stood out as the most commonly and consistently used resource in the 12th grade, used by 95% of the teachers. Self-written tests were used by 94% of the teachers, and other self-written materials were used by 60%. The rating for the next most frequently used instructional resource (12% for workbooks and supplementary texts) shows just how narrow is the range of instructional materials used by most teachers.

Attained curriculum. Table 5 presents a summary of mean 12th-grade student achievement scores for each of the seven content areas. Separate scores for both the pretest and posttest are listed for precalculus and calculus classes. The OTL scores in Table 5 represent the mean teacher ratings of the percent of content to which students had been exposed by the end of 12th grade.

Note that the calculus classes made very large gains in elementary functions and calculus — the content area in which most of their efforts were concentrated. However, they made few gains (and even incurred some losses) in other areas. Also note that in all cases the posttest scores of the precalculus classes were below the pretest scores of the calculus classes. However, the precalculus classes did achieve modest gains in all content areas.

Figure 2 presents a sample item from the 12th-grade test and shows how U.S. students performed on this item. The calculus classes had a greater opportunity to learn the content of this item than did the precalculus classes. Consequently, the higher achievement should not be unexpected. The international median happens to correspond exactly to the performance of the calculus classes in the U.S.

Table 4. Percent of Items Taught in 12th-Grade Classes

		Precalculus		Calculus	
Content Area	N	Taught Before	Taught This Year	Taught Before	Taught This Year
Sets and Relations	7	31	50	50	40
Number Systems	17	39	42	75	14
Algebra	26	34	52	53	41
Geometry	26	21	40	41	26
Elementary Functions and Calculus	46	8	37	9	83
Probability and Statistics	7	29	14	50	6
Finite Mathematics	4	29	21	62	8

Table 5. National Estimates of Mean Scores in 12th-Grade Classes

		Precalculus				Calculus			
Content Area	N	OTL*	Pretest	Posttest	Gain	OTL*	Pretest	Posttest	Gain
Sets and Relations	7	81	48	54	+6	90	66	64	− 2
Number Systems	17	81	33	38	+5	69	43	48	+ 5
Algebra	26	87	35	40	+5	94	53	57	+ 4
Geometry	26	60	24	30	+6	67	35	38	+ 3
Elementary Functions and Calculus	46	45	18	25	+7	92	26	49	+23
Probability and Statistics	7	43	36	39	+3	57	48	48	0
Finite Mathematics	4	50	24	29	+5	71	36	38	+ 2

*OTL = opportunity to learn.

Table 6 compares the mean posttest achievement of U.S. 12th-graders – as a whole and for each class type – with the standardized scores of all nations that took part in the Study. Overall, the U.S. sample performed at a level markedly below the average level of performance found in the final year of secondary school mathematics in the other nations. Considered separately, the calculus classes performed at or near the international median in almost all content areas; the precalculus classes never reached a comparable level.

CHANGES OVER TIME

Table 7 shows the achievement scores for eighth-graders in both the First and Second International Mathematics Studies. The data indicate that overall there has been a modest decline in eighth-grade achievement between 1964 and 1982. While students held their own in algebra, marked declines took place in arithmetic and geometry. Further analysis (not shown here) indicates that much of the decline stems from poorer performance on items requiring higher cognitive skills, rather than on items requiring computational skills.

Table 8 compares the scores of 12th-graders in 1964 with those of 12th-graders in 1982. Overall, there has been a modest gain in achievement for the college-preparatory mathematics students over the 20 years between the two assessments. The increase of six percentage points in elementary functions and calculus is worthy of note, but that gain comes almost entirely from the calculus classes. An analysis of the score changes by cognitive levels (not shown here) indicates that much of the gain stems from items at higher cognitive levels (e.g., comprehension and application), rather than from items requiring computational skills.

STUDENT ATTITUDES

Overall, the attitudes of U.S. students toward mathematics tend to be positive. Students feel that the study of mathematics helps them to think logically and that the subject is a good one for creative people. They also seem to have positive self-concepts with regard to mathematics, and the majority report that both they and their parents want them to do well in the subject.

Students feel that the study of mathematics helps them to think logically and that the subject is a good one for creative people.

Figure 2. Sample 12th-Grade Algebra Item

Two mathematical models are proposed to predict the return y, in dollars, from the sale of x thousand units of an article (where $0 < x < 5$). Each of these models, A and B, is based on different marketing methods.

Model A $y = 6x - x^2$
Model B $y = 2x$

For what values of x does model B predict a greater return than model A?

A $0 < x < 4$
B $0 < x < 5$
C $3 < x < 5$
D $3 < x < 4$
E $4 < x < 5$

Type of Class	OTL*	% Correct (Posttest)
Precalculus	54	45
Calculus	80	56
Combined		47
International Median		56

*OTL = opportunity to learn.

Moreover, we did not find evidence of sex-role stereotyping. U.S. students do not generally believe that mathematics as a field of study is a male domain. Finally, students have positive attitudes about the use of calculators in learning mathematics and about the role of computers in society.

It is important to remember, though, that the 12th-grade sample of students was a specialized group – those engaged in the study of mathematics throughout high school. These are students who have been at least somewhat successful in the subject. Hence, positive attitudes should be expected from this group. The fact that the eighth-graders – a cross section of 13-year-olds nationwide – also had positive attitudes about mathematics is more encouraging.

THE FINDINGS of the Second IEA Mathematics Study that we have reported here are preliminary. Although they lack a certain amount of detail, they still provide a unique vantage point from which to view

Table 6. International Comparisons of 12th-Grade Achievement

		U.S. Means			International Scores		
Content Area	N	Precalculus (% correct)	Calculus (% correct)	Combined (% correct)	25th %ile	Median	75th %ile
Sets and Relations	7	54	64	56	51	61	72
Number Systems	17	38	48	40	40	47	59
Algebra	26	40	57	43	47	57	66
Geometry	26	30	38	31	33	42	49
Elementary Functions and Calculus	46	25	49	29	28	46	55
Probability and Statistics	7	39	48	40	38	46	64
Finite Mathematics	4	29	38	31	--	44*	--

*Estimated median.

the teaching and learning of mathematics in U.S. schools. And they raise questions about how the current proposals to reform secondary education should deal with mathematics.

An analysis of the content coverage in eighth grade reveals a great diversity. For example, a full range of topics in geometry was covered in the U.S. sample. A few classes reported that they included no geometry, a few included nearly all the geometry on the international test, and most classes fell somewhere in between.

This diversity can be attributed to our decentralized system of education, in which specific curriculum decisions are left to local school boards or to classroom teachers. Our freedom from a centralized system clearly offers the opportunity for local authorities to provide students with the kind of program that they judge to be most appropriate. However, this freedom is purchased at a price. That price is the difficulty in obtaining a national commitment to agendas for upgrading instruction.

At the eighth-grade level, where the curriculum appears to be an extension of the elementary school – rather than the beginning of the high school, as is the case in a number of other countries – the Study raises even more fundamental questions. For instance, the differentiation in curriculum that takes place in eighth grade is troublesome. While a few students are already studying high school algebra, a good many others are funneled into remedial classes and may even be effectively cut off from the study of high school mathematics. At the same time, most students are in regular eighth-grade classes, studying arithmetic and not receiving sufficient preparation for the study of high school mathematics.

The findings of the Study also raise some fundamental questions at the 12th-grade level. First, the calculus classes that follow the Advanced Placement (AP) regimen are giving students a solid introduction to calculus. On the average, U.S. calculus students compare well with those in many other countries. The critical difference is that only a small proportion of U.S. students are in such programs. Data from other sources indicate that only about 35,000 students took the AP calculus tests in 1982. Although this number has been increasing rapidly over the past 20 years, it still represents only a small percentage of the students in senior high schools.

A second fundamental question that the Study raises involves the kind of mathematics that is being taught to high school seniors. Our data indicate that most 12th-grade mathematics is designed to prepare students for calculus. A debate is now under way about how relevant such a program is for most students.

The recommendations of the national commissions and task forces, if they are heeded, would increase the amount of mathematics required for high school graduation. But the data from the Second IEA Mathematics Study indicate that many students have not reached the level of achievement needed to deal with college-level calculus. Indeed, "more of the same" may not be the kind of reform of secondary mathematics that U.S. students need. The National Science Board Commission has stated that, as the effects of computers and other high technologies come to be felt in society, discrete mathematics (including statistics and probability) should be regarded as "fundamental for all students."[3] The kind of mathematics to be offered to those students who will be taking more mathematics than ever before and how to teach it to them are among the major issues that confront those who would reform mathematics education in the U.S.

Data from the study indicate that many students have not reached the level of achievement needed to deal with college-level calculus.

Table 7. Eighth-Grade Achievement on First and Second International Mathematics Studies

Content Area	N	First Study (% correct 1964)	Second Study (% correct 1982)	Change
Arithmetic	14	55	49	– 6
Algebra	10	40	41	+ 1
Geometry	5	40	34	– 6
Statistics	5	57	54	– 3
Measurement	2	35	37	+ 2
Overall	36	48	45	– 3

Table 8. 12th-Grade Achievement on First and Second International Mathematics Studies

		First Study (% correct 1964)	Second Study (% correct 1982)			
Content Area	N		Precalculus	Calculus	Combined	Change
Sets and Relations	1	21	52	70	56	+ 35
Number Systems	1	45	56	72	59	+ 14
Algebra	3	44	43	59	45	+ 1
Geometry	4	36	36	45	37	+ 1
Elementary Functions and Calculus	10	25	27	50	31	+ 6
Probability and Statistics	1	45	48	56	49	+ 4
Overall	20	32	35	53	38	+ 6

---

1. Torsten Husen, ed., *International Study of Achievement in Mathematics*, Vols. 1 and 2 (New York: Wiley, 1967). Twelve nations took part in the First IEA Mathematics Study: Australia, Belgium (French), the Federal Republic of Germany, England, Finland, France, Israel, Japan, the Netherlands, Scotland, Sweden, and the United States.

2. Torsten Husén, "Are Standards in U.S. Schools Really Lagging Behind Those in Other Countries?," *Phi Delta Kappan*, March 1983, pp. 455-61.

3. National Science Board Commission on Precollege Education in Mathematics, Science, and Technology, *Educating Americans for the 21st Century* (Washington, D.C.: National Science Board, 1983), p. 43. □

The Second International Science Study: U.S. Results

by Willard J. Jacobson and Rodney L. Doran

Among the surprising findings of the Second International Science Study is the fact that fifth- and ninth-graders in the U.S. showed a pervasive improvement between 1970 and 1983. The results of the Study are useful to all policy makers in education.

THE U.S. IS one of 25 nations currently engaged in the Second International Science Study (SISS), which is being conducted under the auspices of the International Association for the Evaluation of Educational Achievement (IEA). The other nations are: Australia, China, Canada, England, Finland, Ghana, Hong Kong, Hungary, Israel, Italy, Japan, the Republic of Korea, Mexico, the Netherlands, Nigeria, Norway, Papua New Guinea, the Philippines, Poland, Singapore, Sweden, Tanzania, Thailand, and Zimbabwe. With 25 participants, this is one of the largest international empirical studies ever undertaken.

Only data on the U.S. are available to us at this time. Data collection in some nations is not yet complete, and no international comparative data will be available until 1986, at the earliest. Nevertheless, the preliminary results on science achievement among U.S. students are interesting and potentially useful to those who make education policy.

Four populations of U.S. students were studied, each made up of intact classes selected at random in 125 schools chosen to be representative of those four populations nationwide. The sample was stratified so that about 90% of the schools were public and 10% were nonpublic. Students fell into the following population categories: fifth grade, ninth grade, 12th-grade students taking physics, and 12th-grade students not taking science.

The students in these four groups were given three separate tests during three separate testing periods. The first test was the "core" international test used in all the participating countries. For fifth- and ninth-graders, the second test contained rotated forms of subtests, including national option items. For the 12th-grade physics population, the second test was an international physics test that also included five U.S. national option items. The 12th-grade students who were not studying science took tests that contained items related to science and technology that could be useful to future citizens. The third test given to each of the populations consisted of four parts: a questionnaire requesting specific information about the students, a student opinionnaire (SISS Attitude Scales), a science learning inventory, and a word knowledge test.

There was also a school questionnaire, to be completed by the local test coordinator or by an appropriate school official. This questionnaire requested information about the characteristics of the school, the community it serves, the organization of the school day and week, the patterns of science instruction, the physical facilities, and the way in which decisions related to education are made in the school and community.

A questionnaire given to the teachers contained questions about them and their backgrounds. The teachers were asked how they decided what to teach and how they decided which approaches to teaching and testing to use. For each test item, the teachers were also asked to indicate whether or not their students had had a chance to study the concepts tested.

The SISS data for U.S. students have revealed some surprising findings, which should be carefully considered in the formulation of science education policy. In this article, we will emphasize the results for students in grades 5 and 9.

ONE USEFUL feature of the SISS is that the data allow us to compare the achievement of U.S. students in 1983 with the performance of their counterparts in 1970, when the First International Science Study was conducted. A number of items from the first study – called "bridge" items – were used in the SISS, and the scores on these items are of special interest.

At the fifth-grade level, there were 26 bridge items. Overall, students in 1983 did significantly better on these items (their scores were 3.5% higher) than students tested in 1970. On 18 bridge items, the means in 1983 were more than 2% higher than in 1970. On five items there was no significant difference, and on three items students in 1970 outscored students in 1983.

At the ninth-grade level, there were 33 bridge items. Overall, students in 1983 performed significantly better (their scores were 2.8% higher) than students tested in 1970. The means of 15 items were more than 2% higher in 1983 than in 1970. On 11 items the differences were less than 2%; on seven items, students in 1970 did better than their counterparts in 1983.

At the fifth-grade level, students had higher scores on bridge items that were classified as physical science than on those classified as biology. But the gains from 1970 to 1983 were greater in biology than in physical science. The fifth-graders in 1983 answered about 59% of the biology items correctly, and this represented a

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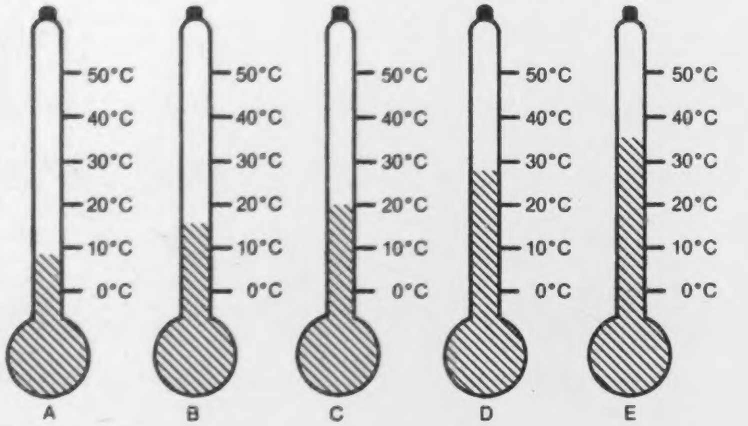
Table 1. Performance on Bridge Items by Content Area

Grade 5	1970 (% correct)	1983 (% correct)	Net Gain (%)
Biology (9 items)	52.8	58.9	+6.1
Physical Science (17 items)	62.2	64.4	+2.2
Total (26 items)	59.0	62.5	+3.5
Grade 9			
Biology (10 items)	62.3	65.6	+3.3
Physical Science (23 items)	54.2	56.8	+2.6
Total (33 items)	56.7	59.5	+2.8

Figure 1. An Item from the Grade 5 Test, Requiring Process Skills

	6 a.m.	9 a.m.	12 noon	3 p.m.	6 p.m.
Monday	15°C	17°C	20°C	21°C	19°C
Tuesday	15°C	15°C	15°C	10°C	9°C
Wednesday	8°C	10°C	14°C	14°C	13°C

Which of the following shows the temperature at 6 a.m. on Wednesday?



	A	B	C	D	E	OMIT
1970	53.3	20.1	8.9	5.0	10.6	2.1
1983	64.6	14.6	8.9	3.9	7.5	.6

gain of 6.1% over 1970. The students answered 64.4% of the physical science items correctly, and this represented a gain of 2.2% over 1970 (see Table 1).

At the ninth-grade level, students had higher scores on bridge items classified as biology than they did on those classified as physical science. In addition, the gains from 1970 to 1983 were slightly greater in biology than in physical science. The ninth-graders in 1983 answered 65.6% of the biology questions correctly, and this represented a gain of 3.3% over 1970. They answered 56.8% of the physical science items correctly, and this represented a gain of 2.6% over 1970.

One of the most surprising findings of the preliminary analyses of the test results for fifth- and ninth-graders in the U.S. is the pervasive improvement in scores for 1983 over scores for 1970. Gains occurred on 18 of 26 items at the fifth-grade level and on 15 of 33 items at the ninth-grade level. Why such improvement between 1970 and 1983?

One way to try to answer this question is to look at the nature of the test items. Many of the items on which scores improved assessed higher levels of thinking and such process skills as classification, calculation, measurement, and the analysis of data. At the fifth-grade level, for example, students did better in 1983 on an item requiring interpretation of tabular data. Figure 1 shows another item on which fifth-graders in 1983 did better than fifth-graders in 1970. This item requires reading tabular data and then applying it to the reading of thermometer scales. As another example of improved process skills, Figure 2 shows an item on which ninth-graders in 1983 were better able (45.6% to 31.3%) to infer the nature of the electrical circuit enclosed within a "black box."

The data suggest that U.S. students in 1983 were better able to respond to items dealing with process skills. In most of the newer science programs, the development of process skills and the development of higher levels of thinking have been emphasized over the recall of factual material. Does this mean that our new emphasis on process skills has been a success? Do these results indicate directions for future improvement?

In 1970, U.S. students found an item dealing with biological adaptation harder than students in all other countries except England and Scotland,[1] but they registered significant gains on this item in 1983. Were these gains due to increased emphasis on the teaching of ecological topics and fewer restrictions on the teaching of topics related to evolution?

These improved test scores in science may also constitute one bit of evidence for a more general improvement in education.

Scores on the Scholastic Aptitude Test have now gone up for three consecutive years.[2] The gains in science could thus reflect a broader trend in U.S. education.

Considering the items on which the scores of U.S. students declined between 1970 and 1983 is also revealing. All three items on which there were declines in the fifth grade and four of the seven items on which there were declines in the ninth grade dealt with topics in earth and space science. Two items that dealt with the length of time it would take a rocket ship to reach the moon and with the nature of moonlight were used as bridge items in both the fifth and ninth grades.

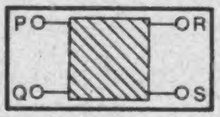
It is well to recall that 1969 and 1970 were years that saw humankind's first ventures to the moon through the Apollo Project. Descriptions and discussions of exploring the moon were everywhere, including on television. Students in 1970 witnessed the blast-off of the rockets and experienced firsthand the wait of several days before the lunar modules landed. Students in 1983 had no such experience. Although the nature of moonlight is mentioned in many textbooks and science programs, there was certainly more discussion and explanation of the phenomenon in 1969 and 1970 than there was in 1983. Thus the decline in these earth and space science items could well be related to the influence of the popular culture, especially television coverage, on the education of U.S. students.

MALES ACHIEVED higher scores than females in the First International Science Study, and the differences between the sexes increased as the level of education increased. In the SISS, differences between the scores of males and females were also evident. Table 2 shows that males scored higher than females on the bridge items at the fifth- and ninth-grade levels and on the core test and the physics test at the 12th-grade level. These gender-related differences widened from grade 5 to grade 9 and from grade 9 to grade 12 – except for the 12th-grade physics population. Apparently, females who enroll in physics (approximately 34% of the physics sample) do better in science than females in the other population groups, and the difference between males and females in the physics population is less than the difference in the total 12th-grade sample.

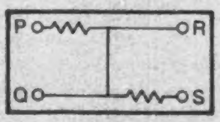
Figure 2. An Item from the Grade 9 Test, Requiring Higher Levels of Thinking

The figure shows a box with four terminals: P, Q, R, and S. The following observations were made.

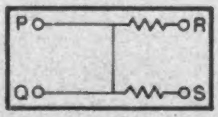
1. **There is a certain amount of resistance between P and Q.**
2. **Resistance between P and R is twice that between P and Q.**
3. **There is not any appreciable resistance between Q and S.**



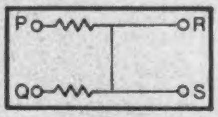
Which of the following circuits is most likely to be within the box? Assume that the resistances shown are equal.



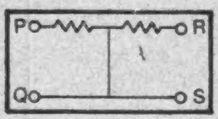
A



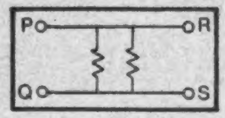
B



C



D



E

	A	B	C	D	E	OMIT
1970	11.3	9.2	11.3	31.3	30.1	6.7
1983	8.5	6.3	14.1	45.6	23.8	1.6

These findings are generally consistent with those reported in other studies. In the report of the First International Science Study, L. C. Comber and John Keeves commented, "For those who believe that girls are not given fair treatment, the IEA findings provide dramatic evidence of the scope of the problems."[3]

Similar findings were also reported by the National Assessment of Educational Progress in 1981: "In summary, there remains a statistically significant difference between males and females, as well as between white and black students, for the content area."[4] Obviously, these problems still exist, and nagging questions remain. What are the explanations for these differences between boys and girls? What can we do to improve the science achievement of girls? A closer look at the items on which the differences between the sexes were greatest might suggest some answers.

There were 72 items in the fifth-grade test. Fifth-grade boys did better than fifth-grade girls on 53 items; girls did better on only four; and on 14 items there was no significant difference. The fifth-grade girls did better on biology items focusing on a balanced diet and on knowledge about seeds. Girls also outperformed boys on physical science items that asked them to suggest a reason why "a rubbed comb picks up small bits of paper" and to suggest "procedures to use when studying rocks brought from the moon."

The items on which boys did better were primarily in the physical sciences. In the physical sciences, boys did better than girls on 21 items; girls did better on one; and there were no significant differences on six items. Figure 3 shows the item on which there was the greatest difference between boys and girls; 60.9% of the boys answered this item correctly, compared to only 34.5% of the girls. Boys also did better on items assessing the correct placement of batteries in a flashlight, the comparative electrical conductivity of several substances, the reason that a thrown ball comes back to the ground, and how long candles would burn in sealed boxes of different volumes. In addition, more boys knew where fish get the air they need to live. These findings suggest that experiences with physical materials, such as balls, flashlights, and aquariums, might be beneficial for girls.

Among ninth-graders, the differences between the sexes were even greater than among fifth-graders. On the 90 items at the ninth-grade level, the boys scored significantly better than the girls on 65; the girls scored better on only three; and there were no significant differences on 22 of the items.

As at the fifth-grade level, the items on which the females had higher scores were in the area of biology. The three items on which ninth-grade females did better assessed "which organ of several is not situated in the abdomen," "which human characteristics are probably due to heredity," and "how to set up an experiment about the germination of seeds." The items on which the boys scored a great deal better than the girls were all in the area of physical science. Three of these items were in earth science; they asked about the "nature of moonlight," "the positions of the sun, the earth, and the moon during a solar eclipse," and "the position of the sun in the morning." Two of these three items called on abilities in spatial perception. The other physical science items on which boys scored a great deal higher than girls measured "the tension between balls hanging on a string," "the need for air in order to communicate by talking," "which objects will *not* be picked up by a magnet," "what happens to light passing through a magnifying glass," and "why evaporated and distilled salt water does not taste salty."

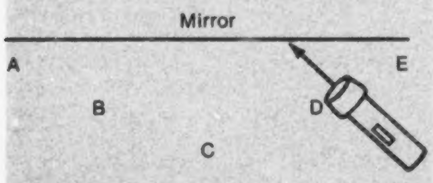
On the 12th-grade core test, boys did significantly better than girls on all items but one, and on that single item there was no significant difference. The item on which there was the greatest difference between the scores of boys and girls was a traditional physics item that involved calculating the tension on a thread supporting objects of different masses. These results seem to suggest the importance for girls of having firsthand experiences in handling such concrete materials as those used in laboratory-style science instruction. Some experience in spatial projection might also be useful.

Table 2. Test Performances by Population and Gender

		% Correct	% Difference
Grade 5	Male	61.3	5.7*
	Female	55.6	
Grade 9	Male	64.7	6.4*
	Female	58.3	
Grade 12 Core Test	Male	62.0	10.6*
	Female	51.4	
Grade 12 Physics Test	Male	37.4	4.8*
	Female	32.6	

*The *t*-tests were significant at the .01 level.

Figure 3. The Item from the Grade 5 Test on Which The Difference Between the Sexes Was Largest



Your friend shines a flashlight at a mirror, as shown above. Where should you stand so that the light will be reflected onto you?

A	Position A
B	Position B
C	Position C
D	Position D
E	Position E

	A	B	C	D	E	OMIT
Boys	4.5	60.9	22.4	7.7	2.6	2.0
Girls	5.7	34.5	37.8	13.9	4.7	3.4

The SISS is an international study. When the testing has been completed in all 25 countries and the preliminary analyses have been carried out at the International Center in Australia, it will be possible to make international comparisons. Though the comparisons of total scores will be interesting, detailed probing of the item-by-item results may be more useful. We will want to know whether there have been gains between 1970 and 1983 in other countries and whether these gains were on items that deal with the processes of science.

Other information in the SISS will also be of interest. For example, it has been suggested that girls do better in science when there are more female science teachers. In one of the countries participating in the SISS most of the science teachers are women. How will the scores of boys and girls compare in that country?

Another valuable feature of the SISS is its explanatory dimension. An attempt will be made to find explanations for individual findings. A number of intriguing questions suggest themselves: What factors in schools in different countries are associated with achievement in science? Are certain teacher characteristics associated with science achievement? Are there features of science education associated with science achievement in other countries that are not present in U.S. schools?

By asking and attempting to answer such questions, the Second International Science Study represents far more than the international comparisons of total achievement that receive so much coverage in the media. The SISS has the potential for discovering ways to improve the science education of our children and young people.

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1. L. C. Comber and John P. Keeves, *Science Education in Nineteen Countries* (New York: Wiley, 1983), p. 299.
2. College Board, "College Board 1984 SAT Scores Rise Four Points, Largest Combined Gain Since 1983," news release, College Board, New York, N.Y., 1984, p. 1.
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MARCH 1985

KAPPAN

Textbook Adoption: Square Dance or Free-for-All?

- Bernstein
- Farr & Tulley

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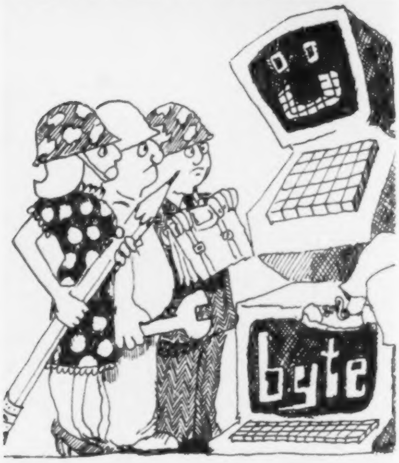

Research Evidence of A School Discipline Problem

by Keith Baker

Research indicates that the discipline problem in U.S. public schools is severe enough that it should concern educators, says Mr. Baker. The education community must face the problem squarely and take steps to improve conditions in the schools.

IF WE ARE TO improve discipline in our schools, we must first agree that a problem exists. Considerable research evidence indicates that the discipline problem in U.S. public schools is severe enough that it should concern educators for a number of reasons.

Crime and violence in the schools merit attention because they are socially undesirable. In a statistical sense, murder in the schools is not a big problem, because it does not happen very often. In a moral sense, however, even one murder is unacceptable. Crime and violence of any kind in the schools must always be a concern of educators. Even where the school crime rate is zero, educators must make sure it stays that way.

Schools in which the crime rate is high probably experience high rates of other, less serious discipline problems as well. Therefore, we can probably use the findings of studies of school crime to help us solve other discipline problems. For example, one of the major conclusions to emerge from the most extensive study of

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Illustration by Joe LaMantia

school crime and violence yet conducted is that school safety depends on clearly stated and fairly enforced rules of behavior. That is generally good advice, and its value is not limited to crime prevention.

Finally, educators must be concerned about the lack of discipline in the schools because an educational environment depends on good discipline. A study of inner-city schools in London used data collected over a number of years to show that, when children move from primary school (ages 5 to 11) to secondary school, their behavior and achievement are affected by school characteristics.[1] Students who transferred from behaviorally "bad" elementary schools to "good" secondary schools became good students and vice versa.

The relationship between good behavior and academic performance is shown in Table 1, which displays data from a nationally representative sample of 30,000 high school sophomores. For all types of misbehavior, there was a clear association between poor grades and misbehavior. For example, a student whose grades were mostly D's was nine times as likely as a student whose grades were mostly A's to have had trouble with the law, 24 times less likely to have done homework assignments, and about three times more likely to have cut classes.[2]

Drug abuse and drinking, which must also be numbered among a school's discipline problems, both have a debilitating effect on learning and are generally illegal – at least for young people. A reviewer of the literature on adolescent drug abuse concluded that problem drinking among teenagers is generally related to poor school performance, participation in antisocial activities, and lack of supervision.[3] A study of 367 high school students found that regular consumption of alcohol was associated with lower grades.[4]

A good climate for learning is a climate with good discipline. Fundamental to improving the quality of the schools is the maintenance of a degree of civil behavior sufficient to allow educational improvements to have a chance to succeed.

THE EXTENT OF THE PROBLEM

Eight years ago, the National Institute of Education (NIE) surveyed a nationally representative sample of principals, teachers, and students in secondary schools on the extent of criminal activity in U.S. schools.[5] Because many crimes are not reported to the police, a survey of the population of potential victims of crime provides better statistics on the scope of the problem than do court records or records of police arrests. In fact, the NIE study, commonly referred to as the "Safe School Study," found that only about one in every 58 crimes that occurred in the schools was reported to the police.

According to the Safe School Study, the scope of criminal activity *each month* in America's secondary schools in 1976 was as follows:

- 282,000 students were physically attacked;
- 112,000 students were robbed through force, weapons, or threat;
- 2.4 million students had their personal property stolen;
- 800,000 students stayed home from school because they were afraid to attend;
- 6,000 teachers were robbed;
- 1,000 teachers were assaulted seriously enough to require medical attention;
- 125,000 teachers were threatened with physical harm;
- more than 125,000 teachers encountered at least one situation in which they were afraid to confront misbehaving students;
- one out of two teachers was on the receiving end of an insult or obscene gesture;
- 2,400 fires were set in schools;
- 13,000 thefts of school property occurred;
- 24,000 incidents of vandalism occurred; and
- 42,000 cases of damage to school property occurred.

These figures reflect what happened during a *typical* month in U.S. secondary schools. Over the course of the 1976 school year, there was more than one theft for every secondary school student and teacher in the United States.

Students as victims. As the NIE study showed, students are the most frequent victims of crime in the schools. In addition to the obvious undesirability of being a victim of a crime, the crime rate in schools has an indirect, but perhaps even more serious, effect on students: crime in school teaches students to fear school.

Educators must be concerned about the lack of discipline in the schools because an educational environment depends on good discipline.

A study of 1,200 families in Philadelphia found that 27% of the adolescents feared school grounds, 28% feared school hallways, and 22% feared their classrooms.[6] In a study of the Dade County, Florida, public schools, one-fifth of the secondary school students said that their ability to learn in the classroom was adversely affected by fear of other students.[7]

A detailed analysis of data from the Safe School Study found that in 1976 there were about 3.7 million fearful students in public high schools.[8] Almost 800,000 secondary students (8%) reported staying home from school for at least one day a month because they were afraid to go to school. Students who were afraid received lower grades and were more likely to rate themselves below average in reading ability. These students viewed schools as hostile places offering little promise of academic reward or personal safety. They were more likely than nonfearful students to think that teachers were unable to maintain order or to hold students' interest. Apprehensive students were more likely to dislike their schools, their teach-

Table 1. Grades and Behavior of a Sample Of High School Sophomores

Type of Misbehavior	Grades Mostly A's	 Mostly B's	 Mostly C's	 Mostly D's
Average days absent per semester	2.28	2.99	4.20	7.87
Average days late per semester	2.05	3.12	4.41	6.44
Percentage of sample not doing assigned homework	1.10	2.73	6.27	24.72
Percentage of sample who cut a class during the school year	28.73	43.39	58.15	67.21
Percentage of sample who have been in serious trouble with the law	1.62	2.93	7.37	14.06

*Source: Thomas DiPrete, Chandra Muller, and Nora Shaeffer, *Discipline and Order in American High Schools* (Washington, D.C.: National Center for Education Statistics, 1981).

Table 2. Number of Teachers Who Would Not Go Into Teaching Again, by Experience with Discipline Problems

Discipline Problem	Number of Teachers Who Would Not Go Into Teaching Again for Every 100 Who Would
Had students with six or more chronic behavior problems	146
Misbehavior interfered with teaching to a great extent	183
School's disciplinary policy not clear	132
School's disciplinary policy not strict enough	131
Personal property damaged or stolen	192
Attacked by a student	184

Source: National Education Association, *Teacher Opinion Poll* (Washington, D.C.: NEA, 1980).

ers, and their fellow students. The authors of the study pointed out that fear among students reduces their ability to concentrate on schoolwork, creates an atmosphere of hostility and mistrust in school, undermines morale, and teaches that the staff is not in control – that "student disorder is more powerful than the adult call for order."

The Safe School Study found that students from minority groups were generally much more likely to be victims of crime than were white students. Consistent with this finding, in 1982 the Gallup Poll found that members of minority groups were more concerned about school crime than whites were. While 68% of white respondents thought that the discipline problem in the schools was very serious or fairly serious, 81% of nonwhite respondents believed this to be the case.[9]

Students can victimize themselves, too. Alcohol and drug abuse are examples of so-called victimless crimes, in which the victim is the perpetrator. Students' abuse of alcohol and drugs is widespread. As the Third Special Report to the U.S. Congress on Alcohol and Health noted:

> A national survey of students in grades 7 through 12 found 74% of the teenagers were drinkers . . . [and] nearly 19% of the students were problem drinkers – 23% of the boys and 15% of the girls.
>
> Approximately two-thirds of high school seniors report ever having used any illicit drug – 60% marijuana, 39% an illicit drug other than marijuana. Six in 10 have used marijuana at least once; one in two use it daily.[10]

Teachers as victims. For many teachers, school has become a hazardous environment and a place to fear. Many teachers face situations in which self-preservation, not teaching, becomes their major concern. For example, a teacher in New Orleans watched while two boys threw a smaller student off a second-floor balcony. The teacher chose not to intervene, lest she, too, be attacked. Other teachers are not so lucky. In Los Angeles, high school girls who were angry about their grades tossed lighted matches into their teacher's hair, setting it on fire. Subsequently, the teacher suffered an emotional collapse.

But criminal acts are only part of the problem that confronts teachers daily in their classrooms. Generally uncivil behavior by students is one of the major causes of teacher burnout. In one survey, 58% of the teachers polled reported that "individual students who continually misbehave" are the primary cause of job-related stress.[11]

Teacher burnout is a major problem in U.S. schools. More than 90% of 1,282 teachers surveyed in one study had experienced feelings of burnout, and 85% of 7,000 teachers surveyed in another study felt that there were chronic health problems related to teaching. Nearly half (40%) of the teachers responding said that they took prescription drugs to treat job-related illness. In another study of 5,000 Chicago teachers, more than half reported having had some job-related illness.[12]

The stress of teaching led one psychiatrist to compare teaching to war, calling teacher burnout a type of "combat neurosis." In another study, Alfred Bloch and Ruth Bloch reported having treated 575 teachers psychiatrically over a seven-year span.[13] All the treated teachers shared two characteristics: they reported that school was an extremely stressful environment and that violence at school was out of control.

Job-related stress drives teachers out of teaching. *Learning* magazine surveyed more than 1,000 teachers, almost one-quarter of whom said that they were planning to leave teaching because of burnout.[14] The National Education Association (NEA) asked active teachers if they would go into teaching again if they had the chance to begin anew.[15] Table 2 shows that teachers who would not go into teaching again were much more likely to have experienced discipline problems than were teachers who would go into teaching again.

Elementary school teachers in the NEA poll reported just as much on-the-job stress as did high school teachers. This finding raises an important point that is often overlooked in the public debate over the lack of discipline in the schools: the problem is not confined to urban high schools. In fact, the NEA teacher poll found that elementary school teachers generally reported *more* interference with their teaching from student misbehavior than did high school teachers. Half of all elementary school teachers in the U.S. reported that student misbehavior interfered with their teaching to a moderate or great extent. Very few (7.7%) elementary teachers reported having no problems with student misbehavior.

Of course, there are obvious differences in the types of misbehavior encountered in the high schools and in the elementary schools. High school teachers are more likely to encounter criminal acts. However, an impromptu game of tag in a second-grade classroom can more seriously disrupt learning for an entire class than a single act of violence on the school grounds.

The NEA poll suggests that student misbehavior interferes more with teaching in the elementary schools than in the high schools. Yet more serious misbehavior – especially criminal acts – occurs in the secondary schools.

Is this a contradiction? Probably not. In many high school classrooms teachers and students have worked out a compromise, a tacit understanding that allows them to coexist in a state of truce. The teacher "agrees" to let troublesome students sit in the back of the room, read comic books, and ignore the lesson. In return, these students tacitly agree not to disrupt the class – at least not too often. The teacher then addresses the lesson only to those students who want to pay attention and ignores the others.

"I'm home a little early, dear. The kids torched the school."

Criminal acts are only part of the problem. Generally uncivil behavior by students is one of the major causes of teacher burnout.

Elementary school teachers do not do this. They are more likely to insist that all students pay attention to the lesson. Consequently, elementary teachers face a more persistent battle with disruptive students.

Taxpayers as victims. Although teachers and students are the most direct victims of classroom disorder, taxpayers are also victimized. The Safe School Study found that each month there were 2,400 acts of arson, 13,000 thefts of school property, 24,000 incidents of vandalism, and 42,000 cases of damage to school property. The National Parent/Teacher Association (PTA) has observed that the annual cost of vandalism – probably in excess of $600 million – exceeds the nation's total spending for textbooks.[16]

TRENDS OVER TIME

As I pointed out above, the most comprehensive data on the extent of school crime come from the Safe School Study and were collected in 1976. Since then, many schools have undertaken programs to reduce school crime and to improve discipline. What has happened during the past eight years?

Deciding whether the problem is getting better or worse is difficult because so few trend data exist. Here I will review two kinds of data: 1) trend data from those few areas for which such data exist and 2) the most recently available data, which, though not nationally representative, provide a picture of the current situation in various parts of the U.S.

Oliver Moles analyzed two sets of data that permit national trends to be established over several years.[17] Using the NEA teacher poll, Moles examined teachers who were victims of assault and property damage between 1972 and 1983 and teachers who were victims of theft between 1978 and 1983. He reported that there were more attacks on teachers during the period from 1979 through 1983 than in the period from 1972 to 1978. Property damage held more or less constant during the same period, except for peaks in 1972 and 1979. Except for a peak in 1979, theft held fairly constant.

Moles used the Department of Justice's crime victimization surveys to study crimes against students and argued that these surveys do not give accurate estimates of the *level* of school crime. However, they can be used to assess trends, since the bias in the data should be the same each year. The crime victimization surveys contain data from 1973 through 1980 on both completed and attempted assaults, thefts, and robberies. Moles concluded that completed assaults rose between 1973 and 1978, dipped in 1979, and then returned to the 1978 level. Attempted assaults were stable over the eight-year period. Theft, the crime most frequently reported by students, declined steadily over the period. The number of reported robberies in several years was too small to permit meaningful analysis.

A comparison of data from 1976 with Moles's data from 1980 shows that assaults on teachers increased by 59% and theft of teachers' property increased by 46%. Completed assaults against students rose by 13%, but attempted assaults declined by 17%. Completed thefts against students dropped by 60%, and attempted thefts fell by 43%.

Another source of information on the changing pattern of school discipline problems is a question from the NEA teacher poll that asked the extent to which teachers find that student misbehavior interferes with their ability to teach. From 1980 through 1983 this question was asked in the same way. The results, displayed in Table 3, suggest some decline in the proportion of teachers complaining of moderate to great interference and a corresponding increase in the proportion of teachers saying that student misbehavior interfered with their teaching to a small extent. The proportion of teachers who reported no behavior problems remained roughly constant at about 10% of all teachers.

From these studies, what can we conclude about the trends in discipline problems since 1976? The picture is confusing. There have been increases in the incidence of some crimes – most notably crimes against teachers – and declines in the incidence of other crimes – most notably thefts against students.

On balance, the data suggest a slight overall improvement. However, it must also be noted that considerable year-to-year variations exist in many of these statistics and that, with the exception of thefts against students from 1973 to 1980, there are no clear-cut trends. On the one hand, it is encouraging to see any indication of improvement. On the other hand, it is discouraging to see that the improvement is so small, especially in light of the extensive efforts of many schools to cope with the problem.

A second way to update the data from the Safe School Study is to examine the most recent data available from school districts and states to see if they are currently experiencing problems. In 1983 the *Detroit Free Press* conducted a survey of teachers across Michigan and found that, during the last school year, 46% of all teachers in the state had been threatened with violence – including 23% who had been threatened by parents of their students.[18] One out of five teachers (19%) had been hit by a student, while 3% had been hit by an intruder and 3% had been hit by a parent. Two out of three teachers said that unmotivated and undisciplined students were a serious problem in their classrooms. One middle school teacher included a can of Mace among her basic teaching supplies.

A study of California schools over a five-month period in 1981 found 100,000 incidents of violence, with an average of 24 teachers and 215 students assaulted every day. Property damage during the five months was $10 million.[19]

The National School Boards Association reported on a 1983 study of crime in seven school districts across the U.S.[20] More than 10% of the students in four of the seven districts admitted breaking windows in school buildings. From 6.6% to

Table 3. Extent to Which Student Misbehavior Interferes with Teaching

Degree of Interference	1979 %	1980 %	1981 %	1982 %	1983 %
Great	16.8	20.9	23.2	17.0	14.5
Moderate	23.1	32.9	28.9	29.8	30.4
Small	33.9	37.7	37.5	42.9	46.0
None	26.2*	8.5	10.4	10.2	9.1
N	1,768	1,731	1,257	1,310	1,467

*In 1979 this response category was "little, if at all."

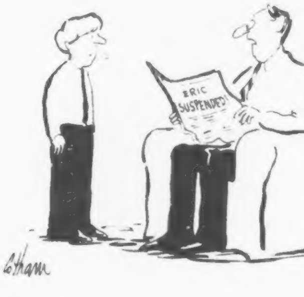
Source: National Education Association, *Teacher Opinion Poll* (Washington, D.C.: NEA, 1979, 1980, 1981, 1982, 1983).

21.7% of the students in the districts admitted stealing from other students' desks. The proportion of students in each district who reported that they had been victims of such thefts ranged from a low of 42.6% to a high of 72.2%. Between 5.5% and 19.5% of the students reported being victims of physical attacks. A total of 16.4% of the teachers in the seven districts reported that students verbally abused them and swore at them. In one city, 80% of the teachers reported being the victims of verbal abuse.

Boston established a Safe Schools Commission that interviewed 495 high school students from four Boston high schools and found a "disturbingly large amount of victimization"[21] – including the fact that 38% of all Boston high school students had been victims of robbery, assault, or larceny during the previous school year and that incidents occurred at the rate of 63 per 100 students. This is one of the few studies to have differentiated victimization rates (the number of victims during some specified period) from rates of incidence (the number of crimes committed). The difference between the two shows that a large proportion of victims were victimized more than once.

Half of the students reported racial harassment. More than one in four students (28%) said that they were fearful at school on occasion, and 36% said that they avoided some places at school from fear for their personal safety. Twenty-eight percent of Boston high school students admitted carrying weapons to school.

Another study for the Boston Safe Schools Commission surveyed a representative sample of 874 Boston public school teachers and found that half of them had been victimized at least once on school property during the previous year; 11.6% had been victimized five or more times.[22] One out of three Boston teachers (32%) claimed to be afraid or extremely afraid while at school. Theft and vandalism were considered to be very widespread by 19% of the teachers, and 12% said that drug use was very widespread.



"It's not the quality of your school newspaper that I'm so concerned about, Eric!"

For the 1982-83 school year, the Los Angeles Unified School District reported 13,154 violations of the law (down 4% from the year before) and property losses totaling $5,824,784 (down 11% from the year before).[23]

Nationally, the 1983 NEA teacher poll reported that during the preceding school year 28% of all teachers had personal property stolen or damaged at school. During the same period, 4.2% had been attacked by students.

To repeat an important point, crime statistics are the best available data, but they represent only part of the problem. Noncriminal misbehavior probably has a far more serious negative impact on the educational process. In the 1983 NEA teacher poll, very few teachers (less than 10%) reported *no* deleterious effects on their teaching from student misbehavior. By contrast, 14.5% reported that misbehavior interfered with their ability to teach to a great extent, 30.4% reported moderate problems, and 46% reported interference to a small extent.

In Boston, 28% of the teachers thought discipline was a very severe or an extremely severe problem in their schools; this figure includes 17% of elementary teachers and 36% of middle school teachers.[24] Thirty percent of the Boston teachers thought that persistent disruption of classes was very widespread, and 23% said that verbal abuse was very widespread. Elementary and high school teachers classified 8% of their students as severe discipline problems, while middle school teachers reported that 15% of their students were severe discipline problems. More than half of the teachers (53%) disagreed or strongly disagreed with the statement that "student troublemakers are kept in line."

From this brief rundown of studies that can be used to update the findings of the Safe School Study, we can conclude that lack of discipline continues to be a serious problem in U.S. schools. Even if there has been some modest improvement since 1976, the current level of discipline problems – especially the level of disruptive behavior in the classroom – is a major problem for public education.

LEARNING IS THE MOST IMPORTANT VICTIM

From an educational perspective, the most important victim of student misbehavior is learning. Students in a drunken or drugged stupor cannot learn. Fighting students cannot learn. Students playing tag or being generally boisterous in the classroom cannot learn. Imagine what happens to the time spent on learning tasks when teachers spend between 30% and 80% of their time addressing discipline problems.[25]

Teachers who function as baby sitters or police officers are not teaching. Students whose teachers do not teach cannot learn.

In most cases, the educational consequences of student misbehavior go beyond the effects on the individual misbehaving student. When a third-grade teacher has to interrupt a reading lesson to stop an impromptu game of tag involving only two students, the education of the entire class suffers. When teacher burnout resulting from the stress of coping with ill-mannered students reduces a teacher's classroom effectiveness or drives a good teacher out of teaching, every one of that teacher's students suffers. When crime and violence create an atmosphere of fear and hostility at school, the efficiency of the education of all students is impaired. Teachers who function as baby sitters or police officers are not teaching. Students whose teachers do not teach cannot learn.

In the study of Boston teachers, teachers were asked their opinion of students. Teachers who had been victims of violence were much more likely than nonvictims to have negative attitudes toward *all* students in their classrooms. Victimized teachers were more likely to think that their students had severe behavior problems, were underachievers, or had minor behavior problems. Victimized teachers thought their students were less interested in school, less likely to have high ability, and more likely to have low ability. The research literature has demonstrated that teachers' expectations of students are related to students' performance. Therefore, victimizing a teacher may indirectly affect the learning of all of that teacher's students.

Children also learn from the misbehavior of others. They learn that authority cannot or will not protect them. They learn to be afraid of school. They learn that adults fear children. They learn that crime does indeed pay, as every day they see other students who rob, steal, talk back, fight, or refuse to do homework – yet are not punished. In such a climate, it should not be surprising that ethical standards of students suffer. The Safe School Study showed that victims of attacks or robberies in high schools were more inclined toward unethical behavior than were nonvictims (Table 4).

THE SCHOOLS' RESPONSE

The data reviewed above and the continuing public concern over school discipline suggest that the response of the schools to the discipline problem has been inadequate. This conclusion is supported by other data. For example, in the 1982 NEA teacher poll, three out of five teachers who had been physically attacked by students felt that the response of school officials was inadequate. In almost half of the cases, no significant disciplinary action was taken.

In addition to surveying students and teachers to determine the actual incidence of crime in schools, the Safe School Study also asked principals about the existence of crime in the schools. The contrast between the views of students and teachers and the views of principals is sobering. While teachers and students reported being victims of more than three million crimes a month, 75% of the principals claimed that crime was either not a problem or only a small problem in their schools. Principals acknowledged only 157,000 crimes and said that two-thirds of these were never reported to the police.

In Boston, 57% of the teachers disagreed or strongly disagreed that their principals were effective disciplinarians, 53% disagreed or strongly disagreed that student troublemakers were kept in line, and 43% felt that the school board was not at all responsive to teachers' concerns about their safety. Among elementary school teachers, 59% thought that suspensions were not used often enough.[26]

When students who commit *criminal* acts go unpunished, the merely unruly or disorderly students know that they have even less to fear. School administrators should pay heed to the National PTA's recommendation: "Students should be punished by the law when they are involved in assaults or violence."[27]

Why are school officials so reluctant to face the discipline problem? First, principals may be motivated to ignore or play down the problem out of fear of appearing incompetent and unable to control their schools. Before the problem can be solved, however, school officials must admit that it exists.

Second, many schools have failed to establish even minimal procedures for dealing with the discipline problem. In many cases, school officials do not know what is happening. Corrective action cannot begin until school officials know the extent and nature of the problem.

Third, many disciplinary actions are ineffective because they are inappropriate. For example, in one school, 45% of all suspensions were for tardiness or skipping classes. It seems obvious that suspending a student who has clearly indicated that he or she does not wish to attend school is more a reward than a punishment. In such cases, a Saturday detention might be more effective than a three-day suspension. Take another example. Many schools still use corporal punishment, though some research indicates that corporal punishment is relatively ineffective.[28] Schools must find more creative solutions to the discipline problem.

Fourth, a number of recent court decisions may have had a chilling effect on the willingness of school officials to enforce disciplinary standards.[29] It is not clear from the literature whether or not school officials have actually been hampered in their enforcement efforts by the actions of the courts or whether some school officials fail to act because they believe the courts have blocked them from acting. In any case, too many of them fail to act.

Fifth, laws and regulations have unintended consequences. To some degree, laws restricting the age at which students can leave school only exacerbate the problem of school discipline. Young people who are kept in school against their will probably create more discipline problems than other students. The U.S. Office for Civil Rights collects information on suspensions and expulsions and analyzes it for patterns of discrimination. Requiring disciplinary actions to be reported may also discourage school officials from taking action against misbehaving minority students (whose victims are also likely to be minority students). As a result, minority students may inadvertently become the victims of violation of their right to a safe school.

The American Association of School Administrators listed the following reasons for administrators and teachers to be reluctant to report crimes in school.[30] The list for administrators includes:

- to avoid bad publicity;
- to avoid blame;
- to avoid litigation;
- because they find some offenses too trivial to report;
- because they prefer to take care of the problems themselves;
- because they suspect that the police and the courts will not work with them; and
- to avoid appearing ineffective.

The list for teachers includes:

- to avoid blame;
- to avoid legal action;
- from fear of retaliation;
- because they are not sure who was to blame; and
- to avoid stigmatizing young people as criminals.

School crime and disorder pose major challenges to America's schools. An effective school system must maintain a level of civil behavior sufficient to allow learning to take place. The available evidence, though not complete, suggests that in far too many of our schools uncivil and even criminal behavior disrupts the learning process.

Although many schools have taken steps to improve their disciplinary climate, one continuing cause of the persistence of discipline problems remains: the failure of many educators and administrators to face the problem squarely, to recognize its importance, and to take steps to improve conditions in the schools.

Table 4. Percentage of Students Inclined Toward Unethical Behavior, by Victimization by School Crime

If You Could Get Away with It, Would You:	Attack		Robbery	
	Victims	Nonvictims	Victims	Nonvictims
Cheat on a test?	23	19	25	19
Spray-paint school walls?	10	4	11	4
Take money from other students?	9	4	9	4
Skip school?	28	24	27	24

Source: National Institute of Education, *Violent Schools, Safe Schools: The Safe School Study Report to the Congress, Vol. 1* (Washington, D.C.: NIE, 1978).

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Restoring Order to the Public Schools

by Gary L. Bauer

Civil behavior in the classroom is a basic prerequisite for learning, insists Mr. Bauer, who strongly supports President Reagan's call for "good, old-fashioned discipline" and condemns the President's critics.

IN SEPTEMBER 1984, the *Kappan* published an article in which two researchers, Irwin Hyman and John D'Alessandro, attacked the motives of the Reagan Administration's school discipline initiative.[1] Hyman and D'Alessandro argued that the Administration's concern over the lack of discipline in U.S. schools was a "harmful overreaction" and an "avowedly right-wing approach to school discipline" perpetuated by "politicians, the media, and special interest groups – all of whom benefit from the myth that U.S. schools are in chaos."

Hyman and D'Alessandro twisted the President's call for "good, old-fashioned discipline" into advocacy of corporal punishment. In one singularly irresponsible passage, they equated the President's concern for orderly behavior in school with such practices as beating students with "doubled-over belts, lacrosse sticks, jai alai sticks, baseball bats, arrows, electrical cords, bamboo rods, rubber hoses, hammers, and wooden drawer dividers." They went on to add, "Some teachers have used cattle prods and similar devices to administer electric shocks to children. Other youngsters have been kicked, choked, or punched – forced to eat cigarettes or to have their faces smeared with hot sauce. One Chicago principal used a pocket knife to drill a hole in a pupil's fingernail."[2] The absurdity of the implication that the President of the United States advocates the use of cattle prods on children speaks for itself.

Student misbehavior is one of the most serious problems facing our schools today. Civil behavior in the classroom is a prerequisite for learning. Even a few disorderly students can disrupt the education of the majority of students who are in school to study and to learn. More than a few disorderly students make education virtually impossible. To prevent this situation, the schools need to do more than merely maintain civil behavior. They must require students to take the responsibility for attending school and learning – and for not interfering with the learning of others.

The President's position on the question of school discipline is simple: students have the right to an education, and we must protect that precious right from the misbehavior of other students. Teachers have the responsibility to educate their students; they also have the right to a safe working environment. Parents have the right to expect the children they send off to school to be educated while they are

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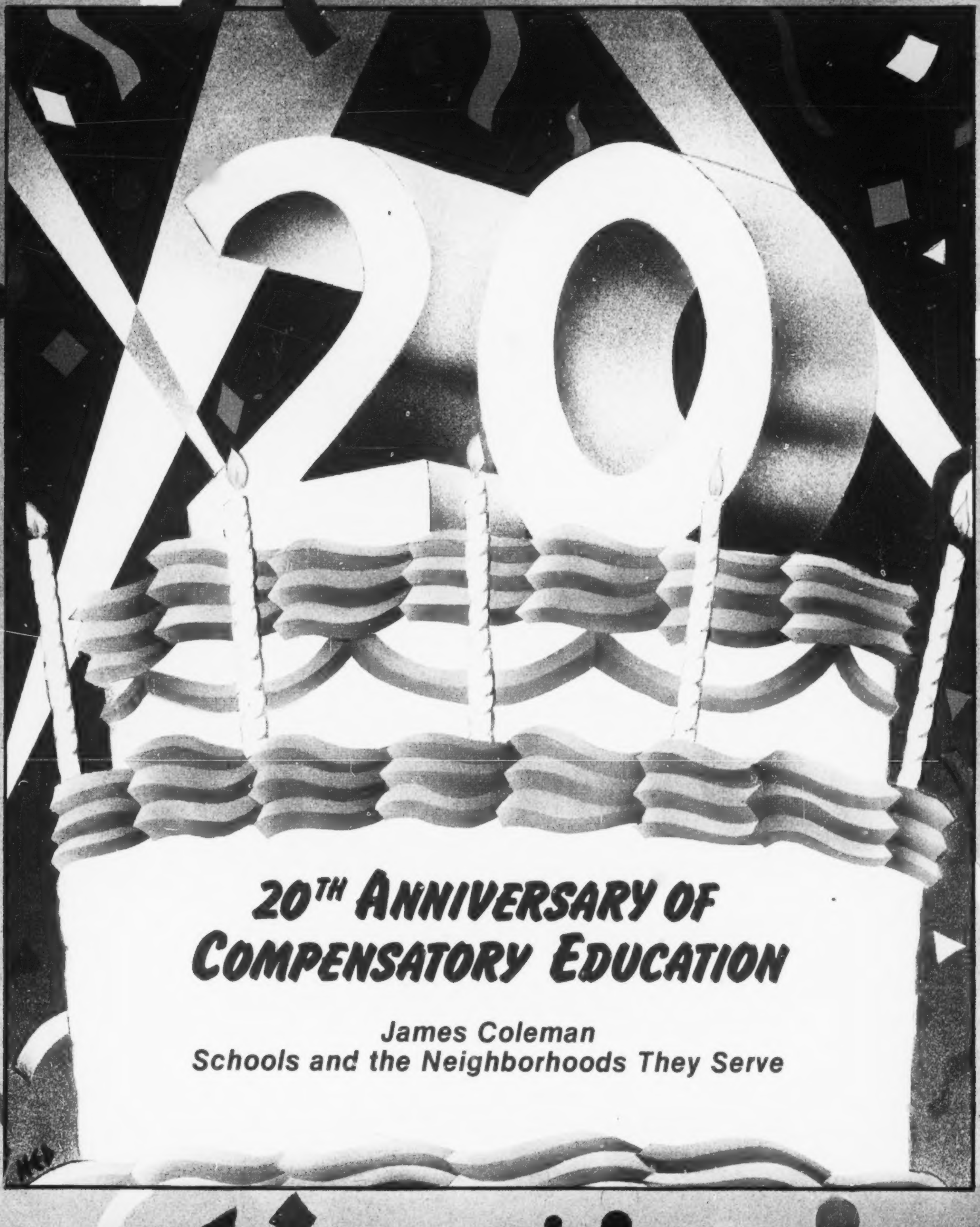
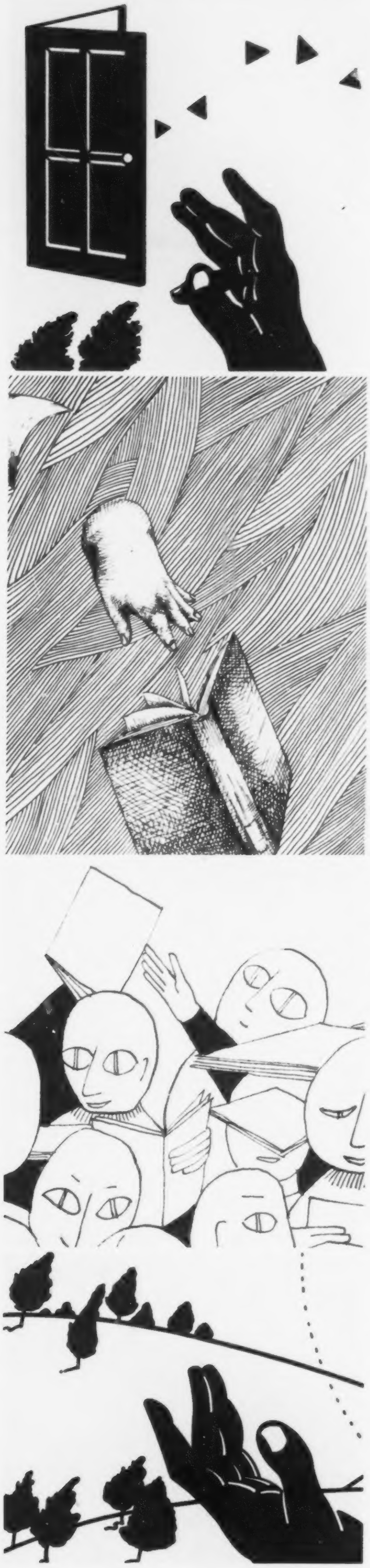


20TH ANNIVERSARY OF COMPENSATORY EDUCATION

James Coleman
Schools and the Neighborhoods They Serve



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Evidence That Good Early Childhood Programs Work

by Lawrence J. Schweinhart and David P. Weikart

Good preschool programs have both short- and long-term positive effects on low-income youngsters, say the authors. They provide evidence of this effectiveness from evaluations of seven exemplary programs.

IN THE EARLY 1960s, many leading educators and social scientists expressed hopes that preschool education programs for poor children could help break the cycle of poverty. They assumed that a chain of cause and effect linked family poverty to the scho-

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LAWRENCE J. SCHWEINHART is director of the Voices for Children Project at the High/Scope Educational Research Foundation, and DAVID P. WEIKART is president of High/Scope. This article is based on Chapter 6 of Changed Lives: The Effects of the Perry Preschool Program on Youths Through Age 19 *(Ypsilanti, Mich.: High/Scope Press, 1984).*

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Illustration by Andrea Eberbach

lastic failure of children and to their subsequent poverty as adults.

These educators and social scientists speculated that preschool education would enhance the intelligence of poor children. This theory received support from early reports that several experimental preschool programs were in fact raising I.Q.s.[1]

However, two well-publicized events in 1969 undermined the popular credibility of the scientific basis for claims about the beneficial effects of preschool education for poor children. The first was a negative evaluation, by the Westinghouse Learning Corporation and Ohio University, of the first years of Head Start; the second was Arthur Jensen's article in the *Harvard Educational Review*, in which he argued that "compensatory education has been tried and it apparently has failed."[2]

As the years passed, however, evidence of the effectiveness of preschool began to mount. Evidence from several evaluations demonstrated that good preschool programs have both short- and long-term positive effects on low-income youngsters. Many studies bear on these issues, but we will consider only seven of these evaluations here. The ones we chose, though not perfect, are among the most scientifically rigorous, and reviewing them provides a clear picture of the long-term effectiveness of early childhood education, as well as an overview of some of the problems that researchers face in conducting such studies.

SEVEN STUDIES

The seven studies listed in Table 1 have followed subjects at least to age 9 and at most to age 21. They have been conducted in locales that represent a cross section of America's urban communities, in both northern and southern states, though all were conducted in areas east of the Mississippi River. Six of the seven studies evaluated programs that operated in a single location.

These seven studies and most of the other recent research on the effects of early childhood education have focused on children living in poverty. The concern of the 1960s for righting the wrongs of poverty was closely tied to the struggle of blacks to obtain civil rights. Thus the response to this concern tended to focus on the needs of the black population, combining compensatory education programs with new policies to insure equal rights in voting, housing, employment, and education. It is not surprising, then, that in most of the studies reviewed here, at least 90% of the subjects are black.[3]

The size of the samples and any special characteristics of the populations are listed in Table 2. The sample sizes varied from a low of 40 in the Milwaukee Study to 2,058 in the New York Prekindergarten Program. The Perry Preschool Project focused on children whose tested I.Q.s at age 3 were between 60 and 90.* The Milwaukee Study focused on children whose mothers had tested I.Q.s of 75 or below. The Harlem Study focused exclusively on males. The New York Prekindergarten Program was open to the public in selected school districts, so the sample more nearly represents the racial mix of low-income families in the population at large.

Attrition is a major threat to the validity of longitudinal studies. As more subjects are lost, both internal and external validity are at risk. The investigators who carried out these seven studies fared well in locating subjects for their follow-up studies: they found at least 71% of the original subjects. The Perry Preschool Project found 100% of its original subjects and interviewed 98% of them. The median percentage of subjects located in the follow-ups was 80%. Moreover, differential attrition across groups within the subject populations was not large enough to constitute a major problem.

Four of the seven studies used the standard experimental design; their treatment and control groups were selected from the same population by procedures designed to insure equivalent groups. In the study of the Early Training Project and in the Milwaukee Study, students were randomly assigned to groups. In the Harlem Study, treatment groups were selected by applying the same sample selection pro-

Table 1. The Seven Studies

Study	Year Study Began	Place	Age of Subjects At Last Report
Early Training Project	1962	Murfreesboro, Tenn.	21
Perry Preschool Project	1962	Ypsilanti, Mich.	19
Mother-Child Home Program	1965	Long Island, N.Y.	9-13
Harlem Study	19[illegible]	New York, N.Y.	13
Rome Head Start Program	1966	Rome, Ga.	20
Milwaukee Study	1968	Milwaukee, Wis.	10
New York Pre-K Program	1975	New York State	9

Table 2. Design Information

Study	Selection Procedure	Special Sample Characteristics*	Original Sample Size	Subjects Included in Most Recent Follow-up %
Experimental Design				
Early Training Project	Random assignment	——	90	80
Harlem Study	Selections from same population	Boys only	315	81
Milwaukee Study	Random assignment	Mothers' I.Q.s 75 and below	40	80
Perry Preschool Project	Assignment of matched pairs	Children's I.Q.s 60-90	123	98
Quasi-experimental Design				
Mother-Child Home Program	Assignment by site	——	250	74
New York Pre-K Program	Some assignment by site	42% white; 42% black; 16% other	2,058	75
Rome Head Start Program	Self-selection	Blacks and whites	218	71

*All samples were selected on the basis of family poverty. Unless otherwise noted, 90% or more of the subjects are black.

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*The data for the Perry Preschool Project are included in the tables, but we will limit our discussion here. For a more detailed description of the evaluation of the Perry Preschool Project, see "The Promise of Early Childhood Education," by Lawrence J. Schweinhart, John R. Berrueta-Clement, W. Steven Barnett, Ann S. Epstein, and David P. Weikart, p. 548, this *Kappan*.

cedures to children born in different months. By chance, one of the two experimental groups had an average I.Q. at age 3 that was six points higher than the average I.Q. of the control group at age 2 years and eight months. This difference was controlled for in the analysis of group differences.

Three of the seven studies used a quasi-experimental design; their treatment and control groups were selected from different populations. One such study, that of the Rome Head Start Program, began in 1966 by identifying all first-graders in the Rome, Georgia, public schools who qualified for federal funds for the economically disadvantaged. Some of these students had attended Head Start and some had not. In the absence of data to the contrary, we cannot rule out the possibility that Head Start participants and nonparticipants in this study differed in important ways before the study began. Because of such doubts, this study cannot stand alone. However, in combination with other studies, it bears examination because of its extraordinary duration.

In the study of the Mother-Child Home Program — a quasi-experimental effort for the years reviewed here — treatment was offered to all willing participants within a given geographic area. This group was then compared to a demographically similar control group in a nearby geographic area. The groups thus selected were generally equivalent on important background factors, though some risk of unmeasured group differences may affect the outcomes of the study.

The third quasi-experimental study, that of the New York Prekindergarten Program, compared two control groups to an experimental group of approximately 1,800 youngsters who took part in the program in 1966. The control group for comparisons of test scores consisted of 87 children on the program's waiting list. This group may or may not have differed from the program participants, depending on the original procedures for selecting participants. For comparisons of scholastic placement, the control group consisted of both the waiting-list group and a group of 171 children of slightly higher socioeconomic status who came from neighboring school districts. Thus some between-group differences certainly exist, but they tend to favor the control group. For example, mothers in the treatment group reported 10.9 years of schooling, while control-group mothers from other districts reported 12.0 years of schooling.

The seven programs varied in size, design, and presumably cost. The Milwaukee program was the most extensive, providing full-time, year-round developmental child care for children ranging in age from a few months to 6 years. It also provided an educational and vocational program for mothers. The Perry Preschool Project provided one home visit per week and a morning classroom program five days a week for two school years (at ages 3 and 4). Its classroom component was equivalent in scope to the one-year programs of the New York Prekindergarten Program for 4-year-olds and the Rome Head Start Program for 5-year-olds. The latter two programs also included several home visits during the school year and offered parents the chance to become involved in the classrooms. The Early Training Project featured part-time classroom experiences five days a week in the summer and weekly home visits during the school year for either three years (for children starting at age 3) or two years (for children starting at age 4). The Mother-Child Home Program consisted of twice-weekly home visits for one to two years, and the Harlem Study provided one-to-one sessions between a child and a tutor twice weekly for eight months.

In reviewing the findings of these studies, we will also mention corroborating findings from the Consortium for Longitudinal Studies. The Consortium was an association of a dozen educators and psychologists, each of whom had initiated a longitudinal study of an early childhood program during the 1960s and had agreed to collaborate in a follow-up assessment during the late 1970s. The Consortium was formed in 1975 by Irving Lazar of Cornell University and Edith Grotberg of the U.S. Administration for Children, Youth, and Families. As investigators for the Perry Preschool Project, we belonged to the Consortium, and our review of the seven studies in this article is the better for our experience with that group. The Consortium based its conclusions on careful review of the methodology of each longitudinal study, and we maintain that tradition here.[4]

The best-documented preschool effect is an immediate improvement in intellectual performance as represented by intelligence test scores.

FINDINGS

The documented effects of early childhood education may be organized according to the major outcomes for participants at each period of their lives. These outcomes and the ages at which they occurred are: improved intellectual performance during early childhood; better scholastic placement and improved scholastic achievement during the elementary school years; and, during adolescence, a lower rate of delinquency and higher rates of both graduation from high school and employment at age 19.

Early childhood. The best-documented preschool effect is an immediate improvement in intellectual performance as represented by intelligence test scores. Of the studies reviewed here, the six that collected such data all attest to the immediate

"My daddy built it."

In these studies, every comparison of scholastic placement was favorable to the group that had received early childhood education.

positive effect of early childhood education on I.Q. Four studies reported a maximum effect of between one-half and one standard deviation (16 points on the Stanford-Binet test); however, statistically significant group differences disappeared by age 8. The intensive Milwaukee Study had a maximum effect of two standard deviations; the difference when the children were last tested (at age 10) was still greater than one standard deviation.

Two other studies in the Consortium for Longitudinal Studies reported effects on I.Q. of about half a standard deviation, which disappeared by age 8. Craig Ramey and his colleagues recently reviewed 11 experimental studies that included I.Q. data on children between the ages of 1 and 6; eight of these studies had data on children between the ages of 1 and 3. In every study, the average I.Q. of children who participated in preschool was as good as or better than the average I.Q. of children in control groups. I.Q. differences ranged from zero in two studies to 21 points in one; the median difference was six points. Of the eight studies with I.Q. data for children between the ages of 1 and 3, six showed I.Q. differences of up to half a standard deviation, and two showed I.Q. differences between one-half and one standard deviation.[5]

Elementary school years. In the studies we are reviewing, every single comparison of scholastic placement was favorable to the group that had received early childhood education (Table 3). In four of the five studies that included data on special education placements, the rate of such placements was usually reduced by half. In the Perry Preschool Project, the overall figure for special education placements (by student-years rather than by students, as reported here) was reduced by half. Two studies report statistically significant reductions in retentions as well. The Harlem Study could not obtain data on placements in special education.

The staff of the Consortium for Longitudinal Studies reported similar findings on scholastic placement. Moreover, their technique of pooling probability estimates confirms the improbability of obtaining all the findings in Table 3 purely by chance.

Avoiding placement in special education programs was one of the major financial benefits of preschool education to emerge from the cost-benefit analysis of the Perry Preschool Project. The strength and consistency of the finding that participants avoided such placements in these other studies argue persuasively that these other preschool programs, too, would show a favorable cost-benefit ratio.

Most of the experimentally derived evidence for the positive impact of preschool on scholastic achievement comes from the study of the Perry Preschool Project, which found differences consistently favoring the preschool group over the control group at ages 7, 8, 9, 10, 11, 14, and 19. Of the other studies reviewed here, only that of the Early Training Project had sufficient data on achievement (from 70% or more of the subjects) to enable conclusions to be drawn. This study found some positive effects at age 8, but no effects at ages 7, 10, or 11.

The Consortium for Longitudinal Studies analyzed achievement test scores across seven of its studies. The pooled analysis found statistically significant positive effects of preschool on arithmetic scores at ages 10, 11, and 12, but not at

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The Promise of Early Childhood Education

by Lawrence J. Schweinhart, John R. Berrueta-Clement, W. Steven Barnett, Ann S. Epstein, and David P. Weikart

Early childhood education has a lasting effect on adult life, claim the authors, who examine the best-known longitudinal study of the effects of preschool programs, the Perry Preschool Project.

ONE OUT OF five children in the United States lives in poverty.[1] Only 39% of the 4-year-olds in families that are below the poverty line attend preschool programs.[2] Yet recent longitudinal studies of early childhood programs – such as the Perry Preschool Study that we are report-

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age 13. In reading, the Consortium analysis found statistically significant positive effects of preschool at age 10 only.

Adolescence. The studies of the Perry Preschool Project and of the Rome Head Start Program are the only preschool studies we know of that have collected information on delinquency or crime — either from police and court records or from self-reports. Neither study found a difference between participants and nonparticipants in the number of persons referred to juvenile court. But the study of the Perry Preschool program did find reduced delinquency among participants — documented by self-reports at age 15[6] and by official records of either total number of arrests or referrals to juvenile court.

Both the Perry Preschool Project and the Early Training Project collected information on rates of teenage pregnancy. The Perry Project reported 64 teenage pregnancies per 100 females who had attended preschool and 117 teenage pregnancies per 100 females who had not attended preschool. The Early Training Project found that 38% of the females in the study reported a pregnancy, with no between-group differences. The Early Training Project did find that, after pregnancy and childbirth, 88% of the females who had gone to preschool were likely to complete high school, while only 30% of

Table 3. Findings for Scholastic Placement

Study	Program Group %	Control Group %	p*
Rome Head Start (age 20)			
Placed in special education	11	25	.019
Retained in grade	51	63	--
Dropped out of high school	50	67	.042
Perry Preschool (age 19)			
Placed in special education	37	50	--
Retained in grade	35	40	--
Dropped out of high school	33	51	.034
Early Training (age 18)			
Placed in special education	3	29	.004
Retained in grade	53	69	--
Dropped out of high school	22	43	.079
Harlem (age 13)			
Placed in special education	No data	No data	No data
Retained in grade	24	45	.006
Dropped out of high school	No data	No data	No data
New York Pre-K (age 9)			
Placed in special education	2	5	.006
Retained in grade	16	21	.019
Dropped out of high school	No data	No data	No data
Mother-Child Home (age 9)			
Placed in special education	14	39	.005
Retained in grade	13	19	--
Dropped out of high school	No data	No data	No data
Milwaukee	No data	No data	No data

*Two-tailed *p*-values are presented if less than .1.

ing here — have shown that good preschool programs can have a beneficial effect on the lives of children reared in poverty.[3]

The federal government invests about a billion and a half dollars annually in early childhood programs for poor children through Head Start, federally funded child-care services, education programs for the disadvantaged, and incentive grants for handicapped children.[4] Several states invest in early childhood programs independently of the federal government, and even more states are considering doing so. New York and South Carolina have substantially increased their funding of early childhood programs, and Texas has begun a new program. Local agencies and school districts also provide early childhood programs, though no national statistics have been compiled. A recent survey by the Michigan Department of Education found that one-third of that state's school districts offer prekindergarten programs.[5]

The past two decades have seen an increasing number of reports of longitudinal evaluations of early childhood programs

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Illustration by Andrea Eberbach

Recent Reports on the Seven Studies

Early Training Project. Susan W. Gray, Barbara K. Ramsey, and Rupert A. Klaus, *From 3 to 20 – The Early Training Project* (Baltimore: University Park Press, 1982).

Perry Preschool Project. John R. Berrueta-Clement, Lawrence J. Schweinhart, W. Steven Barnett, Ann S. Epstein, and David P. Weikart, *Changed Lives: The Effects of the Perry Preschool Program on Youths Through Age 19* (Ypsilanti, Mich.: High/Scope Press, 1984).

Mother-Child Home Program. Phyllis Levenstein, John O'Hara, and John Madden, "The Mother-Child Home Program of the Verbal Interaction Project," in Consortium for Longitudinal Studies, *As the Twig Is Bent . . . Lasting Effects of Preschool Programs* (Hillsdale, N.J.: Erlbaum, 1983), pp. 237-64.

Harlem Study. Francis H. Palmer, "The Harlem Study: Effects by Type of Training, Age of Training, and Social Class," in *As the Twig Is Bent. . .* , pp. 201-36.

Rome Head Start Program. Eleanor Monroe and M. S. McDonald, "A Follow-up Study of the 1966 Head Start Program," Rome City Schools, Rome, Ga., 1981.

Milwaukee Study. Howard L. Garber and Rick Heber, "The Efficacy of Early Intervention with Family Rehabilitation," in Michael J. Begab, H. Carl Haywood, and Howard L. Garber, eds., *Psychosocial Influences in Retarded Performance, Vol. II: Strategies for Improving Competence* (Baltimore: University Park Press, 1981), pp. 71-88.

New York Prekindergarten Program. David J. Irvine, "Evaluation of the New York State Experimental Prekindergarten Program," paper presented at the annual meeting of the American Educational Research Association, New York, N.Y., 1982.

the females who had not gone to preschool were likely to return to school after pregnancy and childbirth.

In three of the studies reviewed here, youngsters who had attended a preschool program were less likely to drop out of high school than were their peers who had not attended preschool. Table 3 shows that the dropout rates of those who attended preschool as opposed to those who did not were 17% lower in the Rome Head Start Program, 21% lower in the Early Training Project, and 18% lower in the Perry Preschool Project. As far as we know, the Perry Project is the only study of the effects of preschool that includes data on employment after graduation, reporting an employment rate at age 19 of 50% for the preschool group and 32% for the non-preschool group.

FROM OUR REVIEW of these seven studies and from the data collected by the Consortium for Longitudinal Studies, we feel safe in concluding that *good* early childhood programs are a wise investment of public funds that can benefit children, their families, and all citizens and taxpayers. To what extent is the U.S. making this investment today?

During the past 30 years, the federal government has provided the lion's share of funding for early childhood programs for children from low-income families. For prekindergartners, this funding has taken two forms: the Head Start Program and subsidized child care. Head Start has maintained a modest but steady growth since it began in 1965. Federal funding for child care – now provided primarily through the Social Services Block Grant and the Child Care Food Program – has had its ups and downs, but it is still substantial. The federal government annually provides about a billion dollars each for Head Start and subsidized child care.

Compensatory education, during the past three decades, has essentially been delivered by Title I of the Elementary and

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for poor children. Such research was originally based on the hypothesis that human intelligence could be improved during the early years. However, as the years have passed, the research has broadened its conceptual framework and considered program effects other than test scores and success in school.

In addition, theorizing about human development has moved beyond questions of whether such personal traits as intelligence are inherited or are products of experience. The focus today is on the unfolding relationship between an individual's genetic make-up and environmental opportunities. Still, all that we can observe and measure is a person's performance in a given setting. Thus the effects of the Perry Preschool Program reported here may be seen as a sequence of performances in various settings, at various times, and in various domains of life.

THE PERRY PRESCHOOL STUDY

The Perry Preschool Study examined the lives of 123 youths born between 1958 and 1962. The students were divided into five waves: Wave Zero, 4-year-olds selected in 1962; Wave One, 3-year-olds selected in 1962; Wave Two, 3-year-olds selected in 1963; Wave Three, 3-year-olds selected in 1964; and Wave Four, 3-year-olds selected in 1965.

Each wave was divided into a preschool group and a nonpreschool group. The Wave Zero preschool group attended preschool for one year; the other four preschool groups attended preschool for two years. For purposes of analysis, we generally combine the waves to form a larger sample. Our most recent longitudinal analysis was conducted using data collected when the subjects were 19 years old, an age reached by Wave Zero in 1977 and by Wave Four in 1981.

The children selected for the study lived in the attendance area of the Perry Elementary School, a neighborhood located on the south side of Ypsilanti, Michigan, that has been populated primarily by low-income black families for some time. Children of preschool age were identified by means of a school census of families with youngsters already attending the school, by referrals from neighborhood groups, and by door-to-door canvassing.

Once the preschool-age children had been identified, the socioeconomic levels of their families were assessed on the basis of the parents' education, the level of employment of the head of the household, and the ratio of rooms in the home to persons in the household. Children from families below a specified socioeconomic level were given the Stanford-Binet Intelligence Test. Those whose scores were between 60 and 90 and who exhibited no evidence of an organic handicap were selected for the study.

Families whose children participated in the study were considerably less well-off than the average American family, according to comparisons with data from the 1970 U.S. Census. The parents of participants had a median 9.4 years of schooling – only .4 years less than the national average for blacks in 1970, but 2.6 years less than the national average for the entire population. Fewer than one in five of the parents had completed high school. Forty-seven percent of the children in the study lived in single-parent families, although only 14% of all American families in 1970 were headed by a single adult.[6]

The scientific strength of this study – its ability to identify preschool effects 20 years later – is primarily due to an experimental design that randomly assigned subjects to treatment and control groups. Neither teachers nor parents had any say in who was assigned to the program and who was not.

Each year, children in the incoming wave were put in pairs according to their

Secondary Education Act of 1965, now Chapter 1 of President Reagan's Education Consolidation and Improvement Act of 1981. In deciding who participates in Chapter 1 programs, school districts must give priority to children enrolled in kindergarten through grade 12. Thus only a small portion of Chapter 1 funding has found its way to programs serving very young children. During the 1981-82 school year, Chapter 1 funds served a total of 4,866,108 students; only 332,355 of them (7%) were in kindergarten or prekindergarten programs.

However, there are good reasons for state and local school administrators to use whatever Chapter 1 funds they can for prekindergarten programs for children at risk of scholastic failure. The cost-benefit analysis of the Perry Preschool Project showed that school systems recoup their investment in a one-year prekindergarten program by the time the participants graduate from high school.

But the federal government is only a minor source of education funding in general. Well over 90% of funding for education comes from state and local sources. Furthermore, state and local governments bear the largest burden of paying for juvenile delinquency, teenage pregnancy, and welfare assistance. Therefore, state and local governments stand to profit the most from investment in good early childhood programs for children from low-income families.

California leads the nation in funding for early childhood education and child care, spending $277 million in 1984-85. No other state even comes close. New York spends only $155 million on early childhood programs, with $141 million of that sum coming from the Federal Social Services Block Grant. However, the New York Prekindergarten Program has received a good evaluation, and both the staunch support of that program by Gov. Mario Cuomo and State Education Commissioner Gordon Ambach and the recent increase in funding for that program (from $10 million to $14 million) are largely due to the positive research results. In South Carolina, Gov. Richard Riley made expanded child development programs an integral part of his education reform package, with funding for early childhood programs slated to rise to about $11 million. Texas has authorized $50 million for early childhood programs in the coming years, and Missouri recently passed comprehensive legislation on early childhood education. Funding legislation for early childhood programs is now pending in more than a dozen states.

Yet, despite compelling research findings and despite the recent actions of a number of states, there are still not enough good early childhood programs for children from low-income families. We must all do something about that.

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1. Rupert A. Klaus and Susan W. Gray, *The Early Training Project for Disadvantaged Children: A Report After Five Years* (Chicago: University of Chicago Press, Society for Research in Child Development, Monograph No. 120, 1968); and David P. Weikart, ed., *Preschool Intervention: Preliminary Results of the Perry Preschool Project* (Ann Arbor, Mich.: Campus Publishers, 1967).

2. Westinghouse Learning Corporation, *The Impact of Head Start: An Evaluation of the Effect of Head Start on Children's Cognitive and Affective Development, Vols. I-II* (Athens: Ohio University, 1969); and Arthur R. Jensen, "How Much Can We Boost I.Q. and Scholastic Achievement?," *Harvard Educational Review*, February 1969, pp. 1-123.

3. This focus on early childhood education for low-income blacks has left its mark. In 1980, for 3- and 4-year-olds in families with annual incomes under $15,000, the preschool enrollment figures were 37% for black children but only 25% for white children. See Gerald Kahn, *School Enrollment of 3- and 4-Year-Olds by Race/Ethnic Category* (Washington, D.C.: National Center for Education Statistics, 1982), p. 13.

4. Irving Lazar, Richard Darlington, Harry Murray, Jacqueline Royce, and Ann Snipper, *Lasting Effects of Early Education* (Chicago: Society for Research in Child Development, Monograph No. 194, 1982). The investigators of the Early Training Project, the Harlem Study, and the Mother-Child Home Program also belonged to the Consortium.

5. Craig T. Ramey, Donna M. Bryant, and Tanya M. Suarez, "Preschool Compensatory Education and the Modifiability of Intelligence: A Critical Review," in Douglas Detterman, ed., *Current Topics in Human Intelligence* (Norwood, N.J.: Ablex, 1984).

6. Lawrence J. Schweinhart and David P. Weikart, *Young Children Grow Up: The Effects of the Perry Preschool Program on Youths Through Age 15* (Ypsilanti, Mich.: High/Scope Press, 1980). ☐

Stanford-Binet test scores; the members of each pair were assigned to different groups. Then, pairs of similarly ranked children were exchanged between the two groups to equate within-group ratios of boys to girls and to adjust the average socioeconomic level of the two groups. Finally, a toss of a coin determined the group assigned to the preschool condition and the group assigned to the nonpreschool condition.

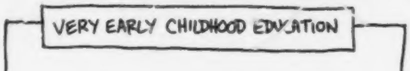
We made few exceptions in this assignment procedure. In Waves Two, Three, and Four, any siblings were assigned to the same group as their older siblings in order to maintain the independence of the groups. Between three and six children with single parents employed outside the home were transferred from the preschool group to the nonpreschool group because they were unable to participate in the classroom and/or home-visit components of the preschool program.

Using these procedures, 58 children were assigned to the preschool group and 65 to the nonpreschool group. Once children were assigned to the groups, none of the families withdrew from the program.

Group comparisons on background characteristics provide added assurance that the effects we found can be attributed to the preschool program. When they entered the project, our two subject groups showed no statistically significant differences ($p < .1$) on the following background characteristics: ratio of boys to girls, child's age and I.Q. at entry, family socioeconomic level, father's presence or absence, parents' scholastic achievement, family welfare status, father's level of employment, household density, family size, and birth order.[7] Because several children whose single parents worked outside the home had been reassigned from the preschool group to the nonpreschool group, there was a statistically significant difference between the groups on maternal employment — 9% maternal employment in the preschool group versus 31% in the nonpreschool group. Statistical analyses indicate that the maternal employment rate had no effect on the pattern of findings.[8]

THE PRESCHOOL PROGRAM

The program to which the 58 children in the preschool group were assigned was an organized educational program directed at the intellectual and social develop-



ment of young children. Each year, teams of four teachers, who had received extensive inservice training, staffed the program. The children took part in the program for two school years, at ages 3 and 4, except in the case of Wave Zero, which included only 4-year-olds, who took part in the program for only one year.

The school year lasted for 7½ months, from October to May. Classes were conducted for 2½ hours each morning, Monday through Friday; the teacher/child ratio was one adult for every five or six children. Teachers made home visits to each mother and child for 1½ hours weekly. *The Cognitively Oriented Curriculum*[9] describes the course of daily activities.

Except for participation in the preschool program, both groups received the same treatment. All 123 children in the study were interviewed and tested in exactly the same way regardless of which group they were in. Testers, interviewers, and subsequent teachers were not informed about the group membership of the children. Any knowledge they did acquire about preschool attendance may be considered a natural extension of the experimental treatment.

Table 1. Major Effects of the Perry Preschool Program at Age 19

Category	N	Preschool Group (%)	Nonpreschool Group (%)	p*
Schooling Success				
High school graduation (or equivalent)	121	67	49	.034
College or vocational training	121	38	21	.029
Functional competence (average or above-average score)	109	61	38	.025
Ever classified as mentally retarded	112	15	35	.014
Percentage of years in special education	112	16	28	.039
Social Responsibility				
Ever detained or arrested	121	31	51	.022
Teen pregnancies	49	64	117	.084
Socioeconomic Success				
Employed	121	50	32	.032
Receiving welfare assistance	121	18	32	.044

*Two-tailed probability of chance occurrence.

Table 2. Summary of Costs and Benefits*

	Benefit or Cost**	
	One Year Preschool	Two Years Preschool
Measured		
Preschool program	–$4,818	–$9,289
Child care	290	572
Education, K-12	5,113	4,964
Earnings, ages 16-19	642	623
Welfare at age 19	55	53
Crime through age 20	1,233	1,197
Predicted		
College	–704	–684
Earnings after age 19	23,813	23,121
Crime after age 20	1,871	1,816
Welfare after age 19	1,438	1,396
Net Benefit†	$28,933	$23,769
Benefit/Cost Ratio	7.01	3.56

*Entries are present values in constant 1981 dollars, discounted at 3% annually.
**Costs are indicated as negative amounts.
†Column sums differ from net benefits because of rounding.

ANALYZING THE DATA

The major sources of data in the Perry Preschool Study were an interview at age 19, reports from primary and secondary schools, police and court records, and records of social service agencies. The outcome variables of this study may be divided into three domains of measurement: scholastic success, socioeconomic success, and social responsibility.

Attrition in the study sample was minimal. The median rate of missing data across all measures was only 5%. The interview at age 19 was administered to all but two study participants, and school records were located for all but 11. These low rates of missing data generally mean that attrition does not affect either the representativeness of the sample or the validity of group comparisons.

The findings for the subjects at age 19 are displayed in Table 1. In the area of scholastic success, members of the preschool group stayed in school longer, scored better on tests of functional competence, were less often classified as mentally retarded, and spent fewer years in special education classes. In the area of social responsibility, members of the preschool group were arrested less often than members of the nonpreschool group, and the females had fewer pregnancies as teenagers. In the area of socioeconomic success, nearly twice as many members of the preschool group were employed, and only half as many were receiving welfare.

A cost-benefit analysis of the program and its effects indicated that the money that society invested in the preschool program was money well spent. The return on the initial investment was 3½ times the cost of two years of preschool and seven times the cost of one year (based on an analysis of outcomes for pupils in Wave Zero only). The major benefits to society were in the form of reduced costs of later education and increased earnings, both actual and predicted. Other benefits included decreased costs for welfare assistance and crime. The economic benefits obtained by the end of high school were sufficient to justify public investment in one year of preschool for children at risk of failure.

Table 2 summarizes the costs and benefits of the program; all entries are in constant dollars discounted at 3%. Discounting takes into account the fact that it is better to receive an amount of money today than a year from today (much like the interest that would accrue on a bank deposit held for a certain interval). The 3% rate was chosen because it is the long-term economic growth rate for the nation.

The major benefits to society were in the form of reduced costs of later education and increased earnings, both actual and predicted.

The per-pupil costs of the Perry Preschool Program were relatively high, but no higher than the costs for many early childhood special education programs. The figures reported are upper-bound estimates of the full costs to society; some of these expenses, such as the cost of the building, would not be borne by a sponsoring agency. Furthermore, the program was an innovation when it began, with the emphasis on quality and effectiveness rather than on efficiency.

Our analysis does suggest certain ways that the program could have been made more efficient – for example, by limiting the program to one year instead of two. Table 2 shows that both one and two years of preschool are good investments, but the benefits of one year are about the same as the benefits of two years. Since two years cost about twice as much, there is little economic justification for investing in the second year of preschool. On the other hand, note that only 13 of the children in this study attended preschool for only one year, while 45 attended for two years. Thus we can be considerably more confident about the findings for two years than we can about the findings for one year.

However, the findings of the Perry Preschool Study and similar studies should not be construed as an endorsement of *all* early childhood programs. There is no intrinsic value in a young child's leaving home for a few hours a day to join another adult and a group of children. Unless the content of a program is carefully defined, a preschool is just another place for a child to be.

Such thinking has led us to conclude that quality is essential in early childhood programs if they are to have long-term benefits. We have developed a definition of quality in preschool programs that is based on research and on our experience in running such programs. Quality in early childhood programs calls for parent involvement, programmatic leadership by supervisors and directors, competent and genuinely enthusiastic teachers, an articulated curriculum of proven effectiveness, a sound inservice training program, and the feedback provided by program evaluation. If a program has these features, we believe it is a good one that will produce lasting effects.

The Perry Preschool Program was a developmental program that helped children to plan, to carry out their plans, and to take responsibility for problem solving. It did not simply follow either of the two most common approaches to early childhood education. First, it was not simply unguided play for children, with the teacher merely keeping them from harming themselves or their classmates. Second, it was not a narrowly focused academic program, and there was no academic drill. The focus was not on letters, numbers, shapes, and colors. Unfortunately, these things often become the focus of early childhood education, when they should properly be viewed as no more than means to an end.

A good early childhood program, we believe, teaches children two things: how to be good learners and how to work with adults who are not members of their families. These are the real basic skills to be imparted by early childhood education. If children do not become learners, open to their experiences, and if they don't learn to work with adults other than family members, then they will never have more than limited access to reading, writing, and arithmetic.

Two conclusions can be drawn from our research. The first, we have detailed here: a good preschool program helps children overcome the effects of poverty to some extent. But preschool and poverty are merely the specific experiences explored here. The more general conclusion of our study is that early childhood education has a lasting impact on adult life. Easy rhetoric, now documented as fact. The quality of life of today's young children has profound consequences for tomorrow's adults. For better or worse, that is the promise of early childhood education.

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1. U.S. Bureau of the Census, *Current Population Reports*, Series P60, No. 133, Tables 1, 2.

2. Martin Chorvinsky, *Preprimary Enrollment 1980* (Washington, D.C.: National Center for Education Statistics, 1982).

3. These findings are more fully described in our monograph, *Changed Lives: The Effects of the Perry Preschool Program on Youths Through Age 19* (Ypsilanti, Mich.: High/Scope Press, 1984). A four-year grant from the U.S. Department of Education provided funding for the most recent phase of the research. The Levi-Strauss Foundation and the Rosenberg Foundation of San Francisco provided matching grants for the economic analysis and for a dissemination project. The views expressed in this article are solely those of the authors and do not necessarily reflect the official positions of the funding agencies.

4. Report by the Congressional Research Service of the Library of Congress to the House Select Committee on Children, Youth, and Families, *Federal Programs Affecting Children* (Washington, D.C.: U.S. Government Printing Office, 1983).

5. *Superintendent's Early Childhood Study Group Report* (Lansing: Michigan Department of Education, September 1984).

6. Lawrence J. Schweinhart and David P. Weikart, *Young Children Grow Up: The Effects of the Perry Preschool Program on Youths Through Age 15* (Ypsilanti, Mich.: High/Scope Press, 1980), pp. 17-19.

7. Ibid., pp. 21-24.

8. *Changed Lives* . . ., pp. 181-86.

9. David P. Weikart, Linda Rogers, Carolyn Adcock, and Donna McClelland, *The Cognitively Oriented Curriculum: A Framework for Preschool Teachers* (Urbana: University of Illinois, 1971). The curriculum has continued to evolve since then; its current status is described in Mary Hohmann, Bernard Banet, and David P. Weikart, *Young Children in Action: A Manual for Preschool Educators* (Ypsilanti, Mich.: High/Scope Press, 1979).

10. David J. Irvine, "Evaluation of the New York State Experimental Prekindergarten Program," paper presented at the annual meeting of the American Educational Research Association, New York, N.Y., 1982. □

"This is from his early period."

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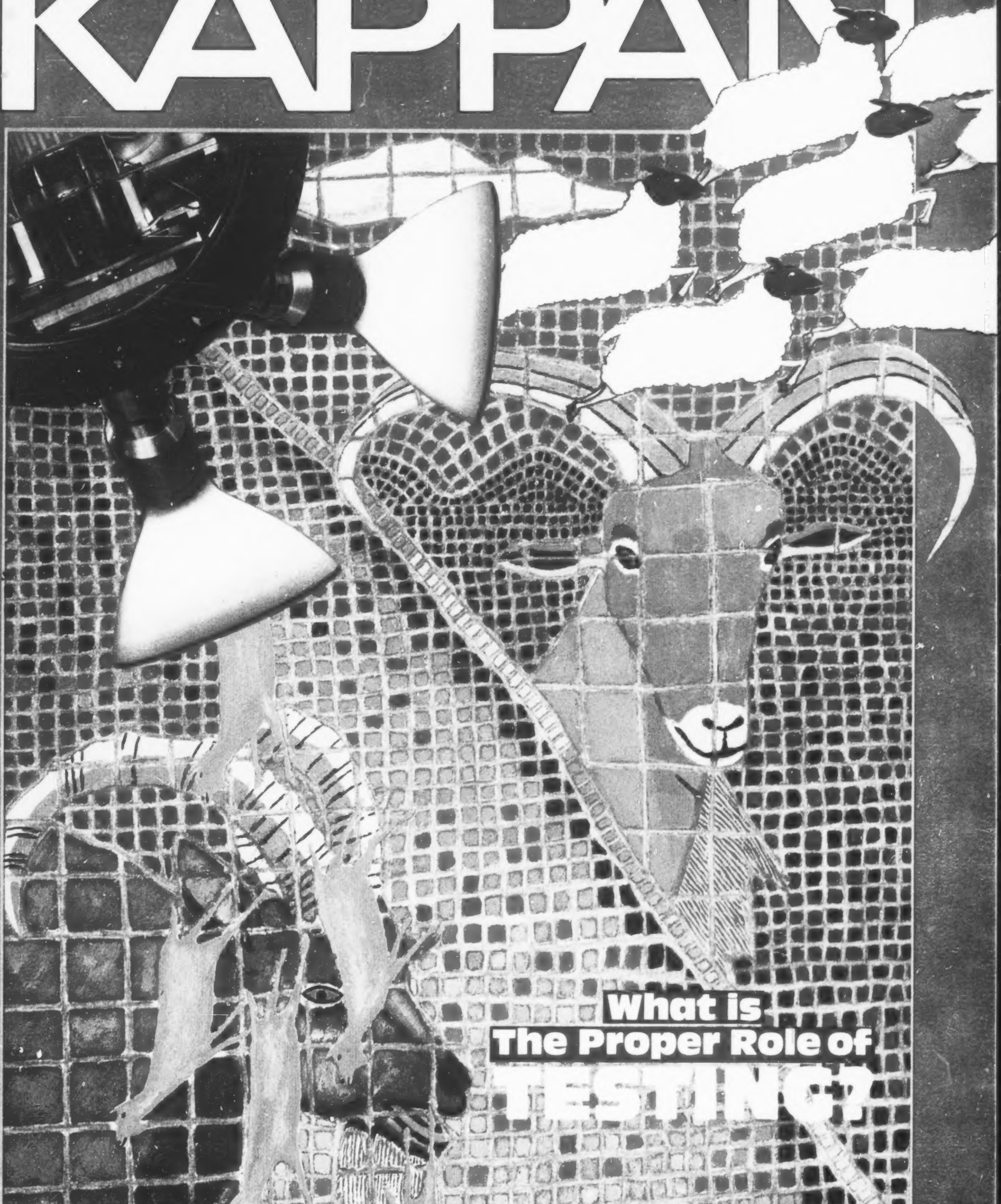
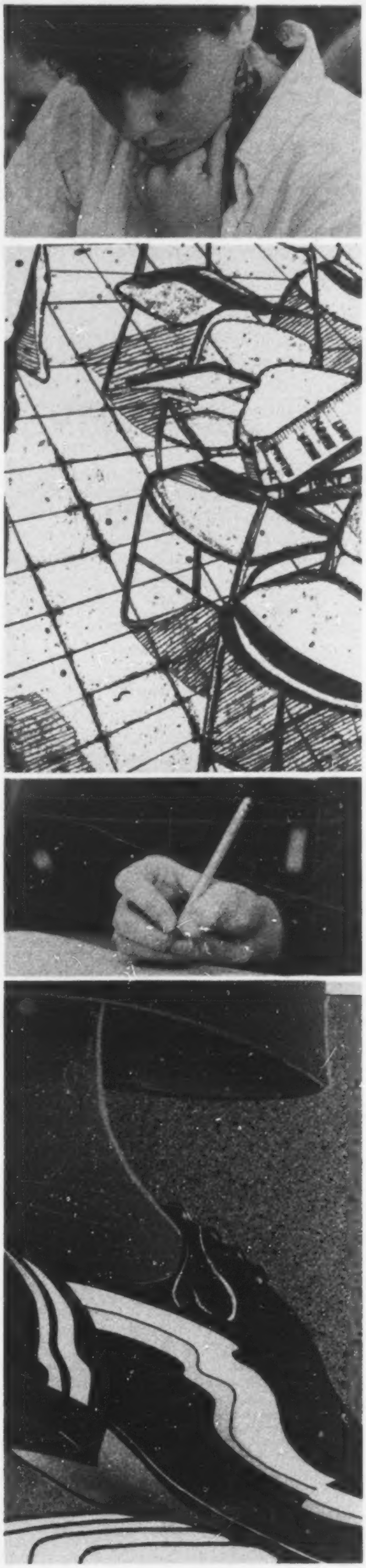


What is The Proper Role of TESTING?



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Cover Illustration: Joe LaMantia

In the political system, a common criterion that is applied equally to everyone is just, since it makes all individuals equal before the law. But in the educational system, a common criterion applied to all guarantees *injustice*, because various subgroups of the population have different talents that derive from their unique cultural backgrounds. These differing talents should be cultivated in ways that enable each group to contribute effectively.

The National Commission on the Higher Education of Minorities recommends "that educational institutions enlarge their concept of competency measures to include the assessment of growth in the noncognitive realm."[10] Speaking for the Commission, Alexander Astin notes that "time-honored uses of [standardized] testing are inconsistent with the ostensible purpose of higher education and detrimental to the progress of minorities."[11]

Frederick Hart goes a step further. He suggests that admissions officials pay less attention to scores on standardized aptitude tests that predict neither an individual's capacity to catch up and perform well during an entire college career nor that person's occupational success after graduation. Rather, admissions officials should attend more carefully to selecting students whose talents and points of view will enrich the learning environment and whose personal characteristics strongly suggest that they will serve the society after graduation.[12]

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1. Christopher Jencks and David Riesman, in Stephen Wright et al., "'The American Negro College,' Four Responses and a Reply," *Harvard Educational Review*, Summer 1967, pp. 451-68.
2. Caroline Hodges Persell, *Education and Inequality* (New York: Free Press, 1977), p. 61.
3. Howard F. Taylor, *The I.Q. Game* (New Brunswick, N.J.: Rutgers University Press, 1980), p. 131.
4. Susan S. Stodolsky and Gerald Lesser, "Learning Patterns in the Disadvantaged," *Harvard Educational Review*, Fall 1967, pp. 546-93.
5. Ibid.
6. Charles V. Willie and Arline McCord, *Black Students at White Colleges* (New York: Praeger, 1972), p. 86.
7. W. B. Schrader, "The Predictive Validity of College Board Admissions Tests," in William H. Angoff, ed., *The College Board Admissions Testing Program* (New York: College Entrance Examination Board, 1971), p. 119.
8. Charles E. Odegaard, *Minorities in Medicine* (New York: Josiah Macy, Jr., Foundation, 1977).
9. E. Virginia Calkins, "Impact of Innovative Selection Procedure on Medical Admissions: Implications for Black Students," paper presented at the annual meeting of the American Educational Research Association, Boston, 1980.
10. Alexander W. Astin, *Minorities in American Higher Education* (San Francisco: Jossey-Bass, 1982), pp. 188-89.
11. Ibid., p. 157.
12. Frederick Hart, "History and Organization of the Law School Admissions Test and the Law School Admissions Council," in *Hearings: Civil Rights Obligations*, Part 2A (Washington, D.C.: Committee on Education and Labor, U.S. Government Printing Office, 1974). ☐

Measurement-Driven Instruction: It's on the Road

by W. James Popham, Keith L. Cruse, Stuart C. Rankin, Paul D. Sandifer, and Paul L. Williams

A carefully conceived testing program can yield improvements in students' basic skills, claim the authors, who present four progress reports from around the nation.

WHEN FUTURE historians direct their attention toward U.S. education during the late 1970s and early 1980s, competency testing will certainly be one of their major interests. Among other things, they will surely want to know whether the overall effects of the widespread adoption of competency testing programs were harmful or helpful. Although there are a number of factors to consider when appraising the value of competency testing, its success or failure will be determined to a large extent by its impact on student learning.

The following pages constitute a report on competency testing programs that have positively influenced student learning. The evidence comes from one city, Detroit, and from three states – Maryland, Texas, and South Carolina – in which carefully crafted competency testing programs have produced meaningful gains in student learning. Moreover, the reports on the four programs were written by administrators intimately involved with them.

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Although they differ in many ways, all four programs include one common feature: measurement was perceived as a *catalyst to improve instruction*. The common conclusion of these reports is that measurement-driven instruction works.

SETTING THE STAGE

Before turning directly to the four competency testing programs, let us outline briefly the forces that triggered the preoccupation with competency assessment during the last decade. And it surely was a preoccupation. Rarely have the states adopted an educational strategy without federal, judicial, or financial prodding. Yet, starting in the mid-1970s, there emerged a string of local and state-mandated competency testing programs.

Some of these programs were unabashedly aimed at minimums. They sought to assess students' mastery of rather rudimentary skills in reading, writing, and arithmetic. Other competency testing programs, though still rooted in the basics, were focused on higher-level skills.

Many people mistakenly assume that most competency testing programs are tied to high school diplomas – that is, that youngsters are obliged to pass tests in order to receive high school diplomas. Although a few of the earliest competency testing programs were linked to the awarding of high school diplomas (Florida's testing program is surely the best known of these), most of the more than 40 statewide competency testing programs today rely on markedly less stringent sanctions for those who fail. Such sanctions include notifying a pupil's parents or providing remedial assistance to a student who performs poorly on the tests.

Yet, as diverse as these competency testing programs are, each was initiated for the same reason: public disenchantment with the quality of public schooling. The belief was widespread in the late 1970s that too many students were being promoted for "seat-time" rather than for their academic accomplishments. So legislatures installed competency testing programs to force educators to produce tangible evidence that students had actually mastered basic skills.

As soon as it became apparent that competency testing was upon us, a series of disputes arose – particularly among academics, who generally had little involvement in implementing the programs about which they were squabbling. Critics of competency testing programs claimed that, because most such assessment programs were aimed at minima, their effect would be curricular reductionism. These critics contended that teachers would gear their instruction only to the low-level competencies covered in the testing program. Proponents of competency testing retorted that, like it or not, the public had installed these evidence-producing tests and that, used properly, the tests could help determine whether an instructional program was achieving its goals.

It is still too early to tell whether most competency testing programs are having good or bad effects. Few reports exist that document the beneficial or deleterious outcomes of such programs. We hope that the four reports presented here will fill that void to some extent. We also recognize that there is a built-in bias in favor of positive reports about any kind of program. After all, who likes to crow about catastrophe? Still, we feel compelled to share the success of these programs, which have been in place long enough to allow us to discern whether or not they are yielding gains.

Central to each of these four programs is the tenet that a testing program, if deliberately designed to do so, can become a major force in improving an instructional program. If the assessment devices used are criterion-referenced tests that have been deliberately constructed to illuminate instructional decision making and if there are significant instructional consequences tied to pupils' test performances, then the testing program will drive the instructional program.

As diverse as these testing programs are, each was initiated for the same reason: public disenchantment with the quality of schooling.

The competencies that are covered by the test will become curricular magnets that draw instruction toward themselves. If the competencies are significant, rather than trivial, they will have a decidedly salutary effect on the instructional program. The notion of measurement-driven instruction is common to all four of the programs discussed in the remainder of this article.

Test Scores Rise In Texas

by Keith L. Cruse

The program. In 1979 the Texas legislature passed Senate Bill 350, which amended state law to provide compensatory instructional services to educationally disadvantaged children. As a part of that law, the Texas Education Agency was directed to adopt and administer criterion-referenced instruments designed to assess basic skills in mathematics, reading, and writing. The law required that all students in grades 3, 5, and 9 be tested.

Other characteristics of the testing program mandated by this law included the following.

- Ninth-grade students were to be given "secondary exit-level" tests designed to "assess minimum mathematics and English language arts competencies."
- The tests were to be kept secure.
- Overall student performance results were to be aggregated by both campus and district and made available to the public.
- Each school district was to use the results of the assessment program to design and implement appropriate compensatory services.
- Each school district was to receive an allotment for each educationally disadvantaged student enrolled in the district.

In 1983 the Texas legislature passed House Bill 723, which expanded the program by requiring students who fail the ninth-grade exit-level test to retake it each year until they demonstrate competency. The law also states that the board of trustees of a school district may require mastery of minimum exit-level competencies as a condition of graduation from high school.

To implement the requirements of this state law, the Texas Education Agency developed the Texas Assessment of Basic Skills (TABS). Committees of Texas educators – including teachers, principals, curriculum specialists, staff members of education service centers, and university professors – were convened in Austin to work with the state agency in reviewing and refining essential objectives and measurement specifications for reading and mathematics. Another committee, composed of staff members of the state agency and school district specialists, was formed to identify essential objectives for writing and to develop appropriate measurement specifications.

Criterion-referenced tests for grades 5 and 9 were completed in the fall of 1979, and criterion-referenced tests for grade 3 were completed in 1980. The fifth assessment cycle was conducted in February 1984.

The TABS tests contain items that measure objectives in mathematics, in reading, and in the mechanics of writing (capitalization, punctuation, spelling, and construction). Each objective is measured by four multiple-choice test items. In addition, the writing test for each grade requires each student to produce a written composition. Each composition is scored by at least two trained raters, using a procedure called "focused holistic scoring."

School districts receive test results for individual students and summary reports for each campus. The percentage of students mastering each of the objectives covered by these tests is also reported. Since the program began in 1980, nearly 3.5 million TABS tests have been administered to Texas youngsters.

The results. The 1984 performance of both third- and fifth-grade students shows marked improvement in all three areas of the curriculum tested. Improvement in the performance of third-graders between 1981 and 1984 on the objectives measured by the multiple-choice items ranged from 3% to 24%; the average improvement was 10%. Similarly, the range of improvement in the performance of fifth-graders between 1980 and 1984 on 28 out of 29 objectives ranged from 3% to 36%, with an average increase of 13%. The average performance of ninth-graders in 1984 was higher than in any year since TABS was initiated.

The mastery levels established by the state board of education for exit-level performance tests were attained by 82% of the students tested in mathematics, by 86% of the students tested in reading, and by 70% of the students tested in writing. Compare these figures with the 1980 outcomes, when 70% passed in mathematics, 70% passed in reading, and 59% passed in writing.

In addition, differences in the performance of ninth-grade students for the three major ethnic groups (black, white, and Hispanic) have narrowed since the first TABS testing cycle in 1980. Figure 1 shows the rates of increase for these three ethnic groups in mathematics and reading. Obviously, there is no simple explanation of how an educational system as large as that in Texas can show these dramatic improvements in achievement. However, Texas educators have identified several common activities as likely contributors to the improvement. Once the legislature, the state board, and the state agency made it clear that certain basic skills were considered important for all Texas students, Texas educators rallied around some common efforts.

> **Workshops were conducted at the state, regional, and local levels on instructional activities that could be used to teach basic objectives.**

- There was increased communication among teachers, administrators, curriculum specialists, and university professors concerning instruction related to the TABS objectives.
- After Texas educators reviewed state-adopted textbooks, several textbook requirements were changed to insure that material covered in the TABS tests was treated appropriately.
- When school curriculum specialists examined their scope-and-sequence charts to determine when TABS skills were taught, they were often surprised to learn that the skills were sometimes overlooked for two or three grades.
- Workshops were conducted at the state, regional, and local levels on instructional activities that could be used to teach these basic objectives.
- Although there were no penalties for poor performance, public pressure was exerted when district and campus results were compared in the news media.

In summary, Texas educators were handed a list of student learnings and told that these learnings were important. At that point, many routine educational activities began to be focused on these targets. Given these clarified instructional targets, the Texas system of education demonstrated that schools can make a difference.

After achieving such large improvements in student achievement, Texas is currently planning for the 1986 Texas

Figure 1. Percentages of Texas Ninth-Graders Mastering the Exit-Level Mathematics and Reading Tests, for Three Ethnic Groups, 1980-1984

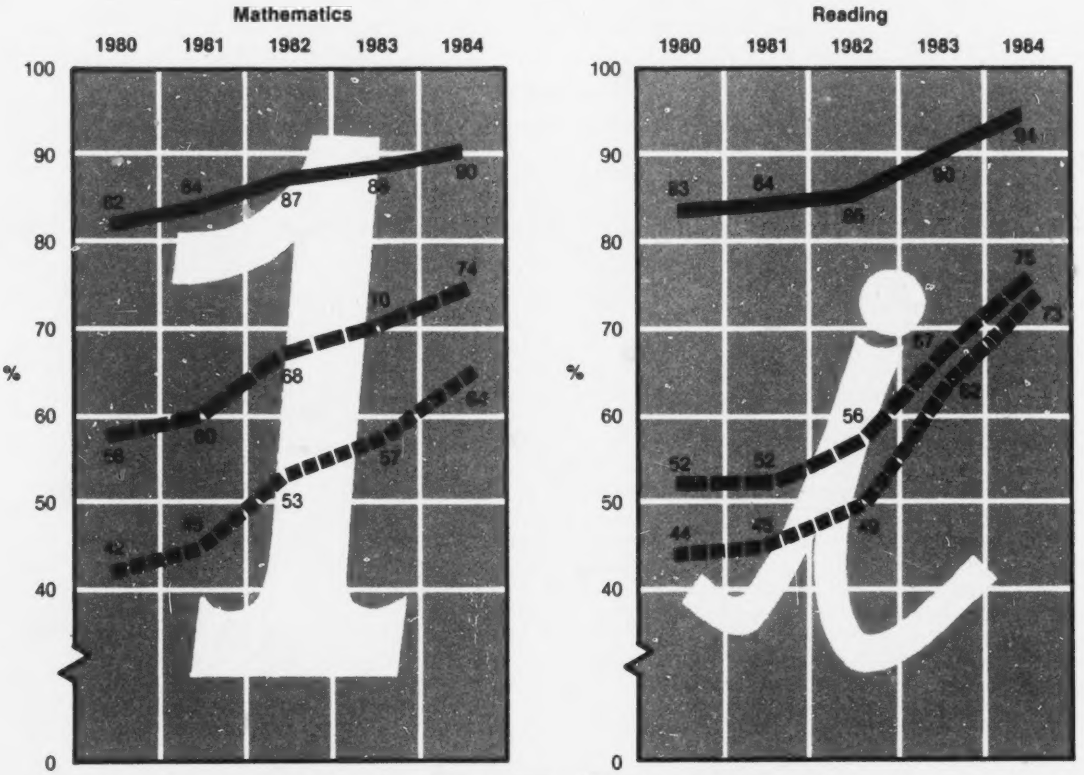


Chart by Mary Miller

Educational Assessment of Minimum Skills (TEAMS) program. In 1986 the standards for minimum competencies will be raised, more grades will be tested, and students will have to pass a 12th-grade test in order to receive a diploma. Texas schools will again have the opportunity to demonstrate their ability to improve student achievement.

Detroit Delivers

by Stuart C. Rankin

The program. In August 1977 the school board in Detroit unanimously approved a program establishing minimum competency requirements for high school graduates called the Detroit High School Proficiency Program (HSPP). After wide-ranging consultation with concerned members of the community, the board directed that fundamental skills in reading, writing, and mathematics be identified. Students in Detroit public schools would need to demonstrate mastery of these basic skills and complete other academic requirements in order to receive a board-endorsed diploma.

The board of education and Superintendent Arthur Jefferson, who proposed the minimum competency requirements, believed that the new program would benefit Detroit students for a number of reasons. Students would not graduate merely because of seat-time served. Instead, they would be given special opportunities to become proficient in at least a minimum number of the basic skills needed by adults in U.S. society.

The central message of the board's policy on minimum competency was clear. The board wanted its educational staff to 1) isolate basic competencies in reading, writing, and mathematics, 2) devise tests to measure to what degree a high school student possesses these competencies, and 3) provide on-target instruction to increase student proficiency in these competencies.

Many activities were necessary to insure that the board's goals would be accomplished. All of them focused on the need to provide the best possible competency-related instruction, so that as many students as possible could master the designated basic skills. To provide such on-target instruction, Detroit educators needed to modify the curriculum in a number of ways. Remedial instruction had to be devised for students who failed in their initial attempts to pass the competency tests. Perhaps more important, those instructional strategies found to be effective in promoting the minimum competencies in the basic skills were to be used in the teaching of other subjects. Thus the HSPP would serve to improve the overall quality of a Detroit high school education, as well as to insure that a Detroit high school diploma would have meaning.

Isolating the skills for which Detroit's high school graduates would be held accountable was undoubtedly the most significant task.

The HSPP began with the selection of the competencies in the basic skills. Next came the development of the proficiency examinations and related instructional materials. A pilot trial of the examinations and materials, followed by revisions, preceded the citywide implementation of the program.

Isolating the skills for which Detroit's high school graduates would be held accountable was undoubtedly the most significant task in developing the HSPP. The responsibility for the final selection of competencies rested with Superintendent Jefferson. He chose to be guided by the recommendations of a broadly representative group of Detroit citizens and educators. A competency selection committee of nearly 40 teachers, parents, administrators, students, businesspeople, and representatives of groups of concerned citizens was appointed in 1978. The committee deliberated for four months before choosing the competencies it wished to recommend to the superintendent.

During the early deliberations, members of the competency selection committee agreed that they would not choose excessively long, instructionally unmanageable lists of small-scope competencies for the three basic subjects. Instead, they would state the competencies in broader language so that a smaller set could be chosen. Those fewer, broader competencies would each encompass a number of lesser, enabling skills. For example, instead of endorsing a separate mathematics competency in multiplying, another in subtracting, and so on, all four of the basic arithmetical operations were combined into a single competency dealing with calculation. The committee reasoned that narrowing the program's focus to a small number of truly significant competencies would enable teachers to focus their attention on a meaningful set of targets.

After lengthy debate, the competency selection committee approved tentative competency lists in each of the three subject areas. The reading list included seven competencies; the writing and mathematics lists included six competencies apiece. These three lists were then submitted to the citizens of Detroit in a major outreach effort.

This phase of the selection process allowed a variety of individuals to offer advice about which of the competencies should be selected. Questionnaires asking for preferences were given to all teachers and administrators in the public schools. Representative samples of students and parents were given similar questionnaires. Public meetings were held by the various regional offices of the Detroit schools, and the *Detroit Free Press* published a complete list of the tentative competencies along with a reader-response form. Vari-

ENGLISH TEST F
Campbell.

"I have chosen a few last words — probably grammatically incorrect."

Each Maryland school district conducted a comprehensive review of its curriculum to make certain that all competencies were covered.

ous civic and business groups held meetings at which their members discussed which competencies should be chosen. The competency selection committee reviewed the preferences of the various groups of citizens and chose four competencies each in reading, writing, and mathematics.

Developing the tests to measure the 12 competencies took nearly 10 months. Detailed test specifications containing all test development rules were prepared. For each competency, a pool of test items was created. Whenever possible, materials relevant to the Detroit area were incorporated into the test questions. All items were then reviewed and field-tested in the spring of 1979. A large, representative sample of Detroit students completed the items, and the final revision and selection of the items was guided by the performance of those students. Analyses of the field-test data also permitted the creation of test forms of equal difficulty.

While the HSPP examinations were being developed, a variety of supporting materials for teachers (practice exercises, a program manual, and audiotaped competency analyses) were readied for the formal introduction of the HSPP in September 1979.

The results. Two types of data on student test performance have been used to judge the effectiveness of the HSPP. The first of these is the High School Proficiency Examination (HSPE); the second is the state-administered Michigan Assessment of Educational Progress (MAEP).

The proportion of graduates passing all parts of the HSPE and receiving a board-endorsed diploma increased from 74% in 1981 to 79.1% in 1983. The proportion of 10th-graders passing all three parts of the HSPE increased from 33.9% in 1980-81 to 37.4% in 1982-83. The percentage of 12th-graders passing all three parts of the HSPE increased from 69.8% in 1980-81 to 74% in 1982-83. The pattern is clearly one of steady across-the-board improvement.

Perhaps even more important, Detroit students' scores on the MAEP have also improved. The proportion of 10th-graders attaining between 75% and 100% of the MAEP objectives in mathematics increased from 29.6% in 1980 to 38.7% in 1983. Similarly, the percentage of 10th-graders attaining between 75% and 100% of the MAEP objectives in reading increased from 51% in 1980 to 61.5% in 1983.

From these data, then, it appears that Superintendent Jefferson's original aspirations for improved achievement among Detroit's youngsters have been realized. Although the HSPP has been only one factor in bringing about these improvements, there is little doubt that the contributions of the competency testing program were significant. Measurement-driven instruction seems to be working in Detroit.

"Leo Durocher said it all: 'Nice guys finish last.' "

Success in South Carolina
by Paul D. Sandifer

The program. The South Carolina Basic Skills Assessment Program (BSAP) was established by legislation in 1978. Among the major provisions of the legislation establishing the BSAP are the requirements that the state board of education, through the state department of education, 1) establish statewide educational objectives in the basic skills with minimum standards of student achievement for readiness and for grades 1, 2, 3, 6, 8, and 11; 2) select a readiness test to be administered at the beginning of grade 1; and 3) select or develop criterion-referenced tests in reading and mathematics to be administered at the end of grades 1, 2, 3, 6, 8, and 11.

The law explicitly requires that the results of the testing program be used as a basis for providing appropriate instruction for those students who do not achieve the minimum standards. None of the tests are related to promotion and retention decisions or to the awarding of a high school diploma.

The objectives that BSAP tests are designed to measure were identified during the 1978-79 school year. Through a process involving more than 18,000 South Carolina educators, as well as members of the general public, 16 basic skills objectives were identified for grades 1 through 12. Each of the 16 objectives (six in reading, five in writing, and five in mathematics) is repeated at each grade level in essentially the same form but at a different level of complexity. All objectives at each grade level are accompanied by suggested measurement strategies that indicate the possible shifts in content and skills at each level.

Eighteen objectives were identified at the kindergarten level. The selection process was slightly different, but it still allowed for input from educators and the general public.

The BSAP tests were devised to assess the extent to which students have attained the educational objectives that were identified during 1978-79. In grades 1, 2, 3, 6, and 8, the reading and mathematics tests consist of six multiple-choice items for each of the objectives. In grade 11, the tests consist of 10 items for each objective. The readiness test used is an adaptation of the Boehm/Slater Cognitive Skills Assessment Battery (CSAB); it is individually administered and requires 25 to 30 minutes per child.

The writing tests in grades 6, 8, and 11 require students to write compositions in response to a specific writing prompt. There is no time limit. The administration procedures require that students develop and edit a draft of the composition on a sheet of scratch paper during the first 30 minutes of testing and then write a final draft. Teachers are required to provide dictionaries for students to use during the writing test.

The writing tests in grades 6, 8, and 11 and the reading and mathematics tests in grade 11 are mentioned here because they are part of the BSAP but will not be included in the discussion of the results. Changes in the writing tests made it impossible to compare results across the years 1981 through 1983, and the reading and math tests for grade 11 are omitted because data for the total population are available for only two years.

The results. Test results indicate that the BSAP is having a positive effect on instruction and student achievement. During the fall of 1979, 60.2% of students were judged "ready" for first grade. This percentage has increased each year since. In the most recent assessment, 72.4% of students were judged "ready." The increase of 12.2% between 1979 and 1984 represents an improvement in the readiness of more than 6,000 pupils.

The improvement in the readiness of minority students has exceeded that for the total population. In the fall of 1979, 44.7% of the black students were judged ready for first grade. By the fall of 1984 that percentage had risen to 60.9% – a gain of more than 16%. This increase in the performance of minority students is particularly encouraging since the largest gains are being made in the subpopulation that the CSAB pinpoints as having the greatest need for improvement.

The reading and mathematics test results for grades 1, 2, 3, 6, and 8 for the years 1981 through 1984 are also encouraging. Table 1 shows the percentage of students who met the BSAP standards in reading and in mathematics for each grade, for each year. In reading, the range of increases over the four-year period varies from a low of nine percentage points for grade 8 to a high of 13 percentage points for grade 2. In mathematics, the range of increases varies from a low of 10 percentage points for grade 6 to a high of 18 percentage points for grade 3.

Table 1. Percentage of Students Meeting the South Carolina Standards for Reading and Mathematics, 1981-83

	Grade				
	1	2	3	6	8
Reading					
1981	70	62	67	55	51
1982	72	69	69	62	52
1983	75	70	76	61	56
1984	80	75	77	65	60
Mathematics					
1981	68	69	61	47	43
1982	68	64	68	51	41
1983	76	76	74	56	42
1984	81	82	79	57	54

The gains made by minority students in the areas of reading and mathematics generally parallel those reflected in the readiness data. The percentage of minority students who met the standard in reading increased at all grade levels. The increases for minority students, which exceed those for the total population, range from a low of 12 percentage points in grade 8 to a high of 18 percentage points in grade 2. In mathematics, the improvement of minority students also exceeded that of the total group. The increases in the percentage of minority students who met the mathematics standard range from a low of 11 percentage points in grade 6 to a high of 22 percentage points in grade 3.

These results support the assumption that was made in the initial stages of developing the BSAP: namely, that measurement-driven instruction can improve education. Such an instructionally oriented system of measurement requires that instructional targets be clearly defined, that expectations be communicated to instructional and supervisory personnel, and that the measurement system be carefully crafted to work with the instructional system. South Carolina educators are increasingly enthusiastic about an assessment program that is clearly succeeding.

In districts in which there has been a great deal of staff development activity related to the testing program, scores have risen substantially.

Maryland Moves Forward

by Paul L. Williams

The program. In late 1977 the Maryland State Board of Education, concerned about the acquisition of fundamental skills by public school students in the state, launched Project Basic. The Maryland Functional Testing Program is one component of Project Basic, Maryland's competency-based instructional program.

Competencies were identified in seven areas: reading, mathematics, writing, citizenship, survival, the world of work, and the arts/physical education. These competencies were then reviewed by 13,000 Maryland citizens who represented business, labor, special education, legislators, students, college professors, teachers, and urban, suburban, and rural parents. From this review process, 232 validated competencies emerged that form the content base for the instructional component of Project Basic. The state board formally approved these competencies in early 1980 and published them in a document called the *Declared Competencies Index* (DCI).

After the competencies were approved, each local school district conducted a comprehensive review of its curriculum to make certain that all competencies were covered. The districts then certified to the state superintendent that all DCI competencies were firmly in place in the state's instructional system.

The state board and the state superintendent intended the DCI competencies to become graduation prerequisites. Thus they set about creating measurement instruments in the areas of reading, mathematics, writing, and citizenship. Competency in the other three areas – survival, the world of work, and the arts/physical education – was to be demonstrated by participation in certain programs.

Test development began by having instructional and measurement personnel determine the characteristics they wished to see reflected in a testing system. As a result of their deliberations, these specialists decided that any measurement program should be based on the following assumptions.

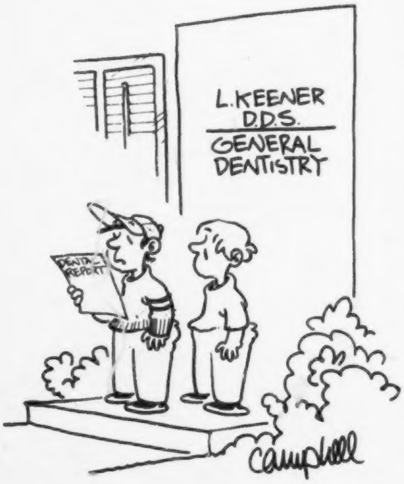
- The measurement component of the competency program must take place within a framework larger than "just a testing program."

- Measurement must directly help teachers and students.
- The DCI outcomes must be clearly articulated so as to provide clear instructional targets for teachers.
- Measurement instruments must reflect what is taught and how it is taught.
- Instructional personnel must be involved in all stages of test development.
- Measurement instruments must be fair; they must be free of bias and include appropriate modifications for special education students.

No existing test was adequate to fulfill all these prerequisites. A review of the literature led the test developers to believe that developing our own criterion-referenced instrument was the only way to insure that all the assumptions would be included.

The most important developmental activity was the production of the test specifications. Objectives within each content area to be tested were grouped into homogeneous content domains by teachers, supervisors, and the staff of the state department of education. These same people then generated specifications for each domain, and these specifications were the basis for item development and the production of instructional support materials.

The reading test has been used as a graduation prerequisite since the spring of 1982. Tests in mathematics and writing become graduation requirements with the class of 1987, and the citizenship test will become a requirement with the class of 1988. Now that the measurement component is in place, there is a great deal of interest in determining whether the measurement-driven instruction is having a positive effect on student learning.



"He certainly put it in terms I can understand. I got a D minus."

The results. The effects of a program such as Project Basic cannot be examined using true experimental methods. Once such a program is mandated, there is no way to hold any subset of students out of the program as a control group. However, this need not deter us from investigating other important indicators that, taken together, may give us a picture of the effectiveness of the program.

The indicators that are being monitored in Maryland include:

- the quantity and quality of training efforts,
- the quantity and quality of instructional support materials,
- organizational responses to instructional needs,
- informal self-report and record-keeping data,
- direct observation,
- test scores, and
- systematic studies.

The number of training activities conducted by the state or by local school districts is an indication of the attention given to preparing school personnel to see that students acquire the mandated skills. The areas of greatest need receive the most attention. For example, the passing rate for the reading test has steadily increased, until 93% of the ninth-grade students now pass on their first attempt. Passing rates in mathematics and writing are hovering around 55%. Thus the number of training activities in reading has decreased, while the number of training activities in mathematics and writing has increased.

A major effect of this training effort has been the production of large amounts of high-quality, on-target instructional materials for use in classrooms. The *Project Basic Instructional Guides* have been produced in two phases: a general instructional guide and more specific guides that contain streamlined test specifications, sample test items, and possible instructional activities.

Local districts throughout Maryland have taken a variety of approaches to developing instructional materials. Perhaps the most significant development has been the production of item banks at the district or building level. The items in these banks, constructed by teachers to be congruent with the test specifications, allow teachers to formulate diagnostic quizzes that can be used prior to the administration of the test. The effectiveness of remedial instruction can then be assessed by administering post-instruction quizzes that are also made up of items from the banks.

Various school districts throughout the state have reported many instructional and organizational alterations in response to Project Basic. Some of these reports include quantifiable data; some do not. But the reports of teachers and administrators still provide important information about the effectiveness of Project Basic, especially when the data in the reports are systematically collected and carefully analyzed.

Evidence of the pervasiveness of instructional applications of the test specifications has been gathered by direct observation of teachers and their classrooms. For example, many teachers have devoted a significant number of the visual displays in their classrooms to explaining the objectives found in the DCI. Phrases such as "main idea" and "problem solving" are often explained in these displays. The DCI is also cross-referenced with many basal and supplementary texts used in classrooms, and individual activity packets are available to teachers.

The actual results of the tests themselves are equally gratifying. The percentage of Maryland students who pass the reading test has risen consistently. When the test was first administered in the fall of 1980, 78% of the students passed. In 1981 the pass rate was 83%; in 1982, 89%; and in 1983, 94%. Much of this consistent improvement appears to stem from the increasing familiarity of Maryland educators with the test specifications for the skills being assessed.

When the mathematics test was first administered in 1982, only 40% of the students passed. One year later, the pass rate was 61%.

Specialists in both instruction and evaluation at the state department of education agree that there is a clear causal link between improvements in the performance of students on the tests and the amount of supporting activity that takes place in the local districts. In districts in which there has been a great deal of staff development activity related to the testing program, the scores of students have increased substantially; in similar districts in which little or no test-related activities have taken place, the students have exhibited far less improvement. The state department is currently carrying out a systematic study of this phenomenon.

FOUR SUCCESS stories are certainly not enough to declare a total victory for measurement-driven instruction. However, these four accounts do reveal that a carefully conceived measurement-driven strategy can yield improvements in students' basic skills. When future historians look back on the competency testing programs in Texas, Detroit, South Carolina, and Maryland, they will find solid evidence that measurement-driven instruction can work. □

plants. Not only do these buildings require massive restorations, but they also cost more to operate than modern buildings – and the costs continue to rise. Indeed, life in the inner city is never cheap. High rates of vandalism, high insurance premiums, and the economic uncertainties of their clienteles place further pressures on the already shaky fiscal resources of the private schools.

THERE IS little help in the offing. According to education researcher Thomas Vitullo-Martin, the Catholic church has invested nearly $1 billion in its inner-city schools during the past 10 years, largely in the form of "hidden subsidies." But those subsidies came from such sources as parish savings accounts and building funds, which were accumulated in more prosperous times and are now drying up.

Weighing this factor and the general situation of inner-city private schools today, as revealed by the League study, the outlook is not optimistic. Demand is increasing for the kind of education that such schools offer; nearly all the schools studied by the League had waiting lists. But the ability of these schools to continue to provide that education appears to be in jeopardy. Nor is there any serious debate about just what is at stake.

Virtually everyone agrees that high-quality education is the only realistic hope for inner-city children who want to escape the quagmire of joblessness, crime, drug use, and dependence on the government. Most observers also agree that inner-city public schools have failed to provide high-quality education. Not even the teacher unions can satisfactorily explain why two of every five black 17-year-olds have serious difficulties with reading, writing, and ciphering – or why, throughout the past decade, blacks scored an average of 100 points lower than the national norm on the Scholastic Aptitude Test.

Writing in the *New Republic*, Phil Keisling, an editor of *Washington Monthly*, listed the shortcomings of the public schools today, including the 300,000 "functional illiterates" who graduate from our high schools each year. Such "social problems" are more abstract and less pressing to teacher unions and elected officials than they are to the parents of children who face – here and now – the prospect of blighted lives. Thus, while inner-city parents struggle and sacrifice to send their children to private schools, the teacher unions rail about those "racist and elitist" institutions, the politicians in the state and federal governments completely ignore the educational needs of inner-city black and Hispanic children, and minority unemployment rates skyrocket. ☐

Christian Schools and Teacher Licensing

by Bruce K. Alcorn

In conducting a study of Christian schools, Mr. Alcorn found that such schools are interested in hiring qualified teachers and generally favor certification of some kind.

AS THE NUMBER of Christian schools has grown, so has the number of legal questions surrounding the control of private schooling in general.[1] State constitutions typically claim less control over private schools than they do over public schools, but the amount of this control varies greatly from state to state.

For example, Nebraska requires schools to be accredited by the state, a process that requires schools to use only state-certified teachers.[2] In some other states, private schools need only keep attendance records and meet minimal requirements for public safety, such as adhering to fire and health codes. Indeed, when state control over private education has been enforced, it has usually been through the mechanism of state attendance laws.[3]

One of the most controversial questions arising out of the debate over the public control of private schooling is whether or not the state should be able to require that private schools employ certified teachers. The attitudes of administrators in Christian schools and of their school boards vary considerably on this matter. Some feel that the principle of separation of church and state precludes any state control over Christian schools. This was the position of the pastor of the Faith Christian School in Louisville, Nebraska.[4] Other administrators voluntarily require their teachers to be certified, whether or not the state requires it.

This diversity of opinion led the Association of Christian Schools International (ACSI), the largest of several Christian school associations, to develop a teacher certification program of its own in 1979. That same diversity caused me to wonder about the specific practices of ACSI members with regard to certification. In September 1982 I mailed an eight-item questionnaire to all ACSI non-college members in the Midwest (as listed in the *1982 Directory of ACSI*). A total of 214 schools were included in this 10-state region, ranging from a high of 83 in Ohio to only one in North Dakota. Sixty-six percent of the schools responded. (See Table 1 for a state-by-state breakdown.)

The other items on the questionnaire asked about state laws governing teacher licensing, the school's attitudes toward these laws, and the school's position with regard to the ACSI certificate. The data elicited by these questions are not altogether clear. That is, responses from schools within the same state were not always in agreement about state laws. One reason for these discrepancies is that some states require that private schools employ

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only certified teachers if they wish to be state-approved schools. If they do not desire state approval, however, they may employ whomever they choose. In an effort to resolve matters, I sent a brief questionnaire to the department of education in each of the states. The results are shown in Table 2.

Table 3 shows school certification requirements by state. Overall, 73% of the schools in this study require their teachers to hold valid state certificates, and fully 84% at least encourage their teachers to obtain state certificates. Indeed, in all states except Wisconsin a majority of the schools surveyed require their teachers to be certified – despite the fact that 49% of the respondents do not believe that their states require teachers in private schools to be certified.

Another curious finding of my survey is that only a meager 6% of the Christian schools that responded require their teachers to hold ACSI certification, even though the ACSI certificate is specifically designed for teachers in Christian schools. However, 55% at least encourage their teachers to obtain an ACSI certificate. (The ACSI certification program is still relatively new. Moreover, many teachers in Christian schools do not meet the requirements of the ACSI: those with degrees from Bible colleges are often deficient in liberal arts areas; those with liberal arts degrees often have weak backgrounds in theology and the Bible.)

Because Christian schools have experienced such rapid growth in recent years, no consensus has developed regarding certification, either by state agencies or by such groups as the ACSI. Nevertheless, the data in this study show that Christian schools are interested in employing qualified teachers and generally favor certification of some kind.

Table 1. Distribution of ACSI Schools in the Midwestern States, 1982

State	Total		Church Related		Independent		Other	
	N	%*	N	%**	N	%**	N	%**
Illinois	10	7	6	60	4	40	0	0
Indiana	14	10	10	71	4	29	0	0
Iowa	5	4	4	80	1	20	0	0
Kentucky	5	4	4	80	1	20	0	0
Michigan	15	11	9	60	6	40	0	0
Minnesota	18	13	9	50	8	44	1	6
North Dakota	1	1	0	0	1	100	0	0
Ohio	62	44	44	71	15	24	3	5
South Dakota	4	3	2	50	2	50	0	0
Wisconsin	8	6	4	50	4	50	0	0
All States	142		92	65	46	32	4	3

*Figures add to more than 100% because of rounding.
**Within-state percentage.

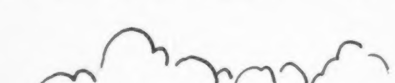
Table 2. Survey of State Departments of Education

Questions	Ill.	Ind.	Ia.	Ky.	Mich.	Minn.	N.D.	O.	S.D.	Wis.
1. Can private schools legally operate without state approval?	Yes	Yes	Yes	*	No	**	No	Yes	No	Yes
2. Must *all* or almost all teachers be state certified?	No	No	Yes	*	Yes	No	Yes	Yes	Yes	No
3. Must only *some* teachers be state certified?	No	No	†	*	†	No	†	†	†	No

*Kentucky did not respond.
**The response from Minnesota said, "Not sure."
†Not applicable.

Table 3. Private School Requirements for Teacher Licensing (by State and Type of School)

	Required by School				Encouraged by School			
	Yes		No		Yes		No	
State	N	%	N	%	N	%	N	%
Ill.	6	60	4	40	9	90	1	10
Ind.	11	79	3	21	12	86	2	14
Ia.	5	100	0	0	5	100	0	0
Ky.	5	100	0	0	5	100	0	0
Mich.	13	87	2	13	13	87	2	13
Minn.	10	56	8	44	16	89	2	11
N.D.	1	100	0	0	1	100	0	0
O.	46	74	16	26	51	82	11	18
S.D.	3	75	1	25	3	75	1	25
Wis.	3	37	5	63	4	50	4	50
All States	103	73	39	27	119	84	23	16
Type of School								
Church related	63	68	29	32	75	82	17	18
Independent	36	78	10	22	40	87	6	13
Other	4	100	0	0	4	100	0	0



"Mr. Branson is a perpetual student."

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[1] As I use the term, a Christian school is any nonpublic elementary or secondary school that calls itself a Christian school. In most cases, these institutions are religiously oriented day schools. Some are directly connected with a given church; others are legally independent.

[2] "Christian School Defies Court Rule, Is Still Operating," *Education Week*, 3 March 1982, p. 6.

[3] Patricia M. Lines, "State Regulation of Private Education," *Phi Delta Kappan*, October 1982, pp. 119-23.

[4] "Private Schools' Conflict with Nebraska Officials Heats Up," *Education Week*, 29 September 1982, p. 5; and "Church and State," *Indianapolis Star*, 24 October 1982, p. 6-F. ☐

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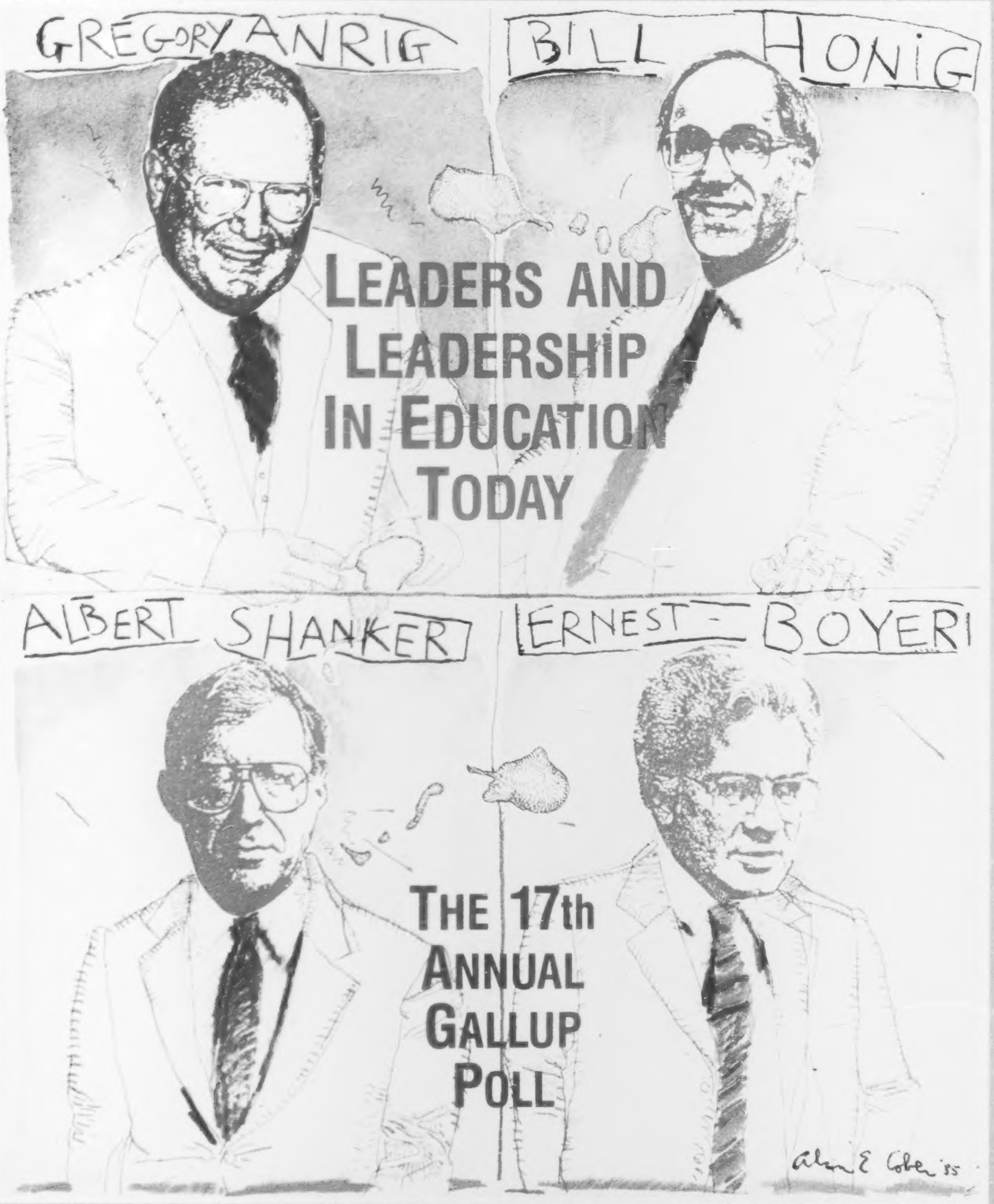
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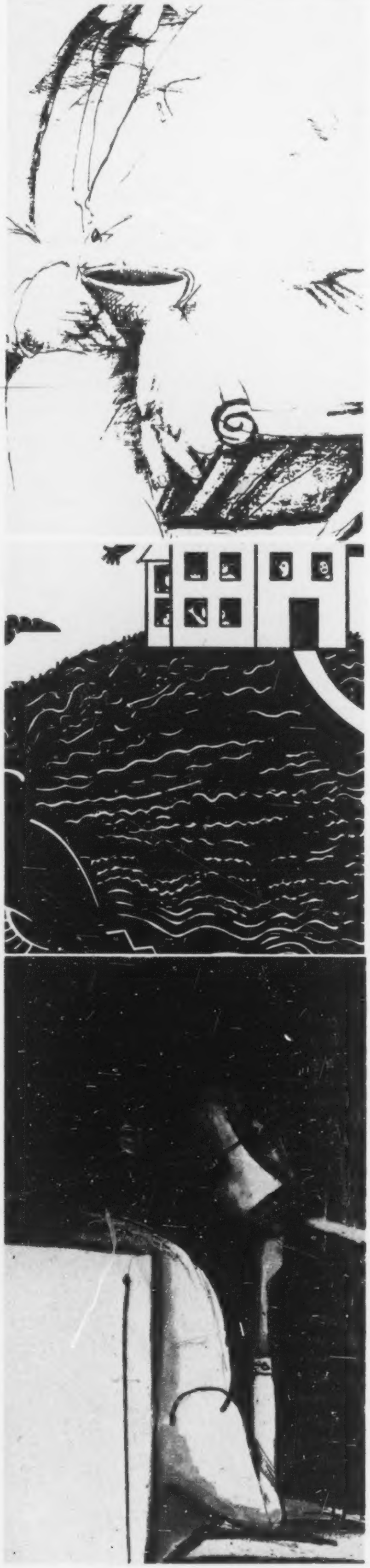
LEADERS AND LEADERSHIP IN EDUCATION TODAY

THE 17th ANNUAL GALLUP POLL



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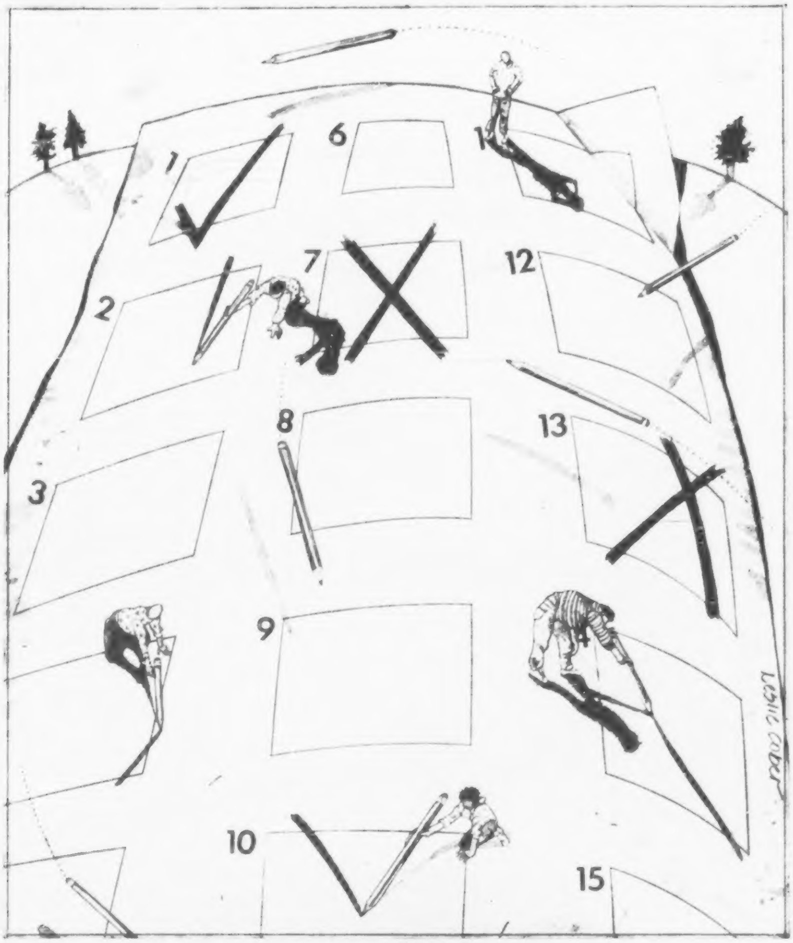


THE 17TH ANNUAL GALLUP POLL of the public's attitudes toward the public schools

by Alec M. Gallup

The annual Gallup Poll of the Public's Attitudes Toward the Public Schools, now financed by Phi Delta Kappa, is intended to be a continuing source of reliable information concerning trends in opinion about significant school questions. For school officials, the poll is valuable in at least two ways: it alerts decision makers to overall public reaction to a variety of school programs and policies, and it serves as a national benchmark against which local attitudes can be measured.

Local officials are welcome to use questions asked in the Gallup education surveys. The questions are not copyrighted. Moreover, no limits are placed on the use of information contained in these reports, beyond customary credit

Illustration by Leslie Cober

to the source and observance of the canons of accuracy and completeness of quotation.

Phi Delta Kappa's Dissemination Division, assisted by the Gallup Organization, is prepared to help school districts and other agencies survey local populations on education questions. For details of this service, called PACE (Polling Attitudes of the Community on Education), write or telephone Wilmer Bugher, associate executive secretary for administration, Phi Delta Kappa, P.O. Box 789, Bloomington, IN 47402. The phone number is 812/339-1156.

1985 Rating of the Public Schools

The public rates the public schools as favorably in 1985 as it rated them in 1984, when the schools achieved the highest grades for performance in a decade.

This year, 43% of those interviewed gave the public schools in their communities a grade of A or B — a figure statistically equal to the 42% who gave their local public schools a grade of A or B last year. The 1984 ratings were up sharply over 1983, when only 31% of respondents gave their local public schools a grade of A or B.

Three respondents in 10 this year said that their local schools deserve a grade of C. Only 14% said that the public schools in their communities deserve a grade of D or FAIL.

As has always been the case, those individuals most closely in touch with the public schools tended again in 1985 to perceive the local public schools more favorably. Among respondents with children attending public schools, 52% gave the public schools in their communities a grade of A or B. Among respondents with no children in school, only 39% gave the local public schools a grade of A or B.

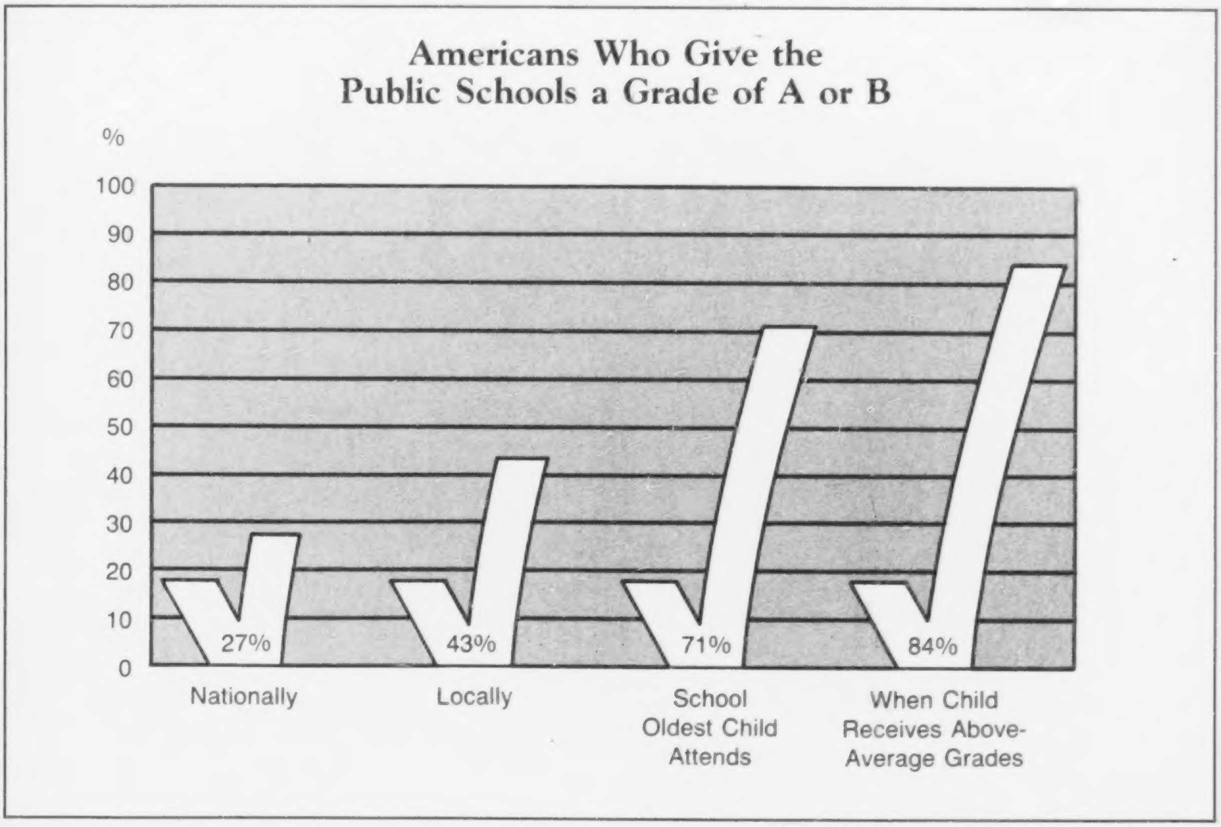
The question:

Students are often given the grades A, B, C, D, and FAIL to denote the quality of their work. Suppose the *public* schools themselves, in this community, were graded in the same way. What grade would you give the public schools here — A, B, C, D, or FAIL?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
A	9	9	8	4
B	34	30	44	29
C	30	30	33	31
D	10	10	9	23
FAIL	4	4	4	7
Don't know	13	17	2	6

Ratings Given The Local Public Schools	**National Totals**								
	1985 %	**1984** %	**1983** %	**1982** %	**1981** %	**1980** %	**1979** %	**1978** %	**1977** %
A	9	10	6	8	9	10	8	9	11
B	34	32	25	29	27	25	26	27	26
C	30	35	32	33	34	29	30	30	28
D	10	11	13	14	13	12	11	11	11
FAIL	4	4	7	5	7	6	7	8	5
Don't know	13	8	17	11	10	18	18	15	19

	A %	**B** %	**C** %	**D** %	**FAIL** %	**Don't Know** %
NATIONAL TOTALS	**9**	**34**	**30**	**10**	**4**	**13**
Sex						
Men	8	33	32	11	3	13
Women	10	34	29	10	5	12
Race						
White	9	34	30	10	4	13
Nonwhite	7	35	32	10	8	8


Americans Who Give the Public Schools a Grade of A or B

Charts by Mary Miller

	A %	B %	C %	D %	FAIL %	Don't Know %
Age						
18 - 29 years	5	27	33	15	5	15
30 - 49 years	7	39	32	9	5	8
50 and over	14	32	27	9	3	15
Education						
College	9	33	29	11	5	13
High school	8	34	32	10	5	11
Grade school	14	30	26	8	4	18
Income						
$40,000 and over	9	39	30	12	4	6
$30,000 - $39,999	8	39	32	7	4	10
$20,000 - $29,999	8	34	34	9	4	11
$10,000 - $19,999	8	32	29	13	5	13
Under $10,000	12	26	27	10	4	21
Community Size						
1 million and over	8	28	29	13	8	14
500,000 - 999,999	13	30	37	10	*	10
50,000 - 499,999	8	36	29	11	3	13
2,500 - 49,999	11	41	30	10	1	7
Under 2,500	10	37	32	6	2	13
Central city	6	27	33	14	8	12
Region						
East	7	34	28	12	5	14
Midwest	12	38	30	7	2	11
South	9	33	28	10	5	15
West	6	28	37	13	6	10

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*Less than one-half of 1%.

Rating of Public Schools Nationally

Respondents continue to give schools in their own communities higher grades than they give the public schools nationally. In 1985, 27% of the public gave the public schools nationally a grade of A or B — the highest percentage since this question was first asked in 1974. However, the 1985 figure is statistically equal to the 25% who gave the public schools nationally a grade of A or B last year.

The question:

> **How about the public schools in the nation as a whole? What grade would you give the public schools nationally — A, B, C, D, or FAIL?**

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
A	3	4	4	1
B	24	22	28	22
C	43	43	42	47
D	12	11	14	19
FAIL	3	3	2	6
Don't know	15	17	10	5

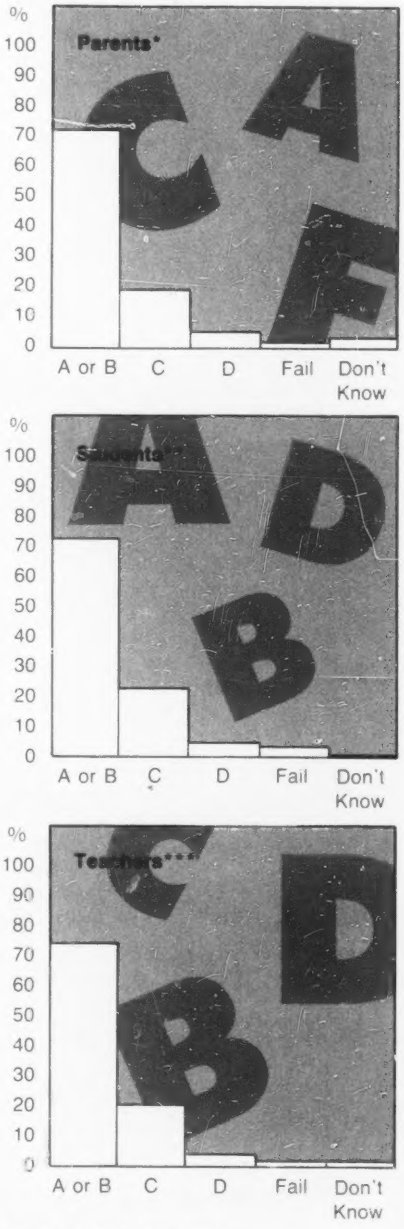
NATIONAL TOTALS	1985 %	1984 %	1983 %	1982 %	1981 %
A	3	2	2	2	2
B	24	23	17	20	18
C	43	49	38	44	43
D	12	11	16	15	15
FAIL	3	4	6	4	6
Don't know	15	11	21	15	16

Rating of Public Schools Their Children Attend

When parents are asked to rate the schools their own children attend — the schools with which they are presumably most familiar — the grades they assign are appreciably higher. Almost three-quarters (71%) of the parents give their children's schools a grade of A or B. Nineteen percent assign a grade of C, and only 7% assign a grade of D or FAIL.

When their children are performing at an above-average academic level, 84% of the parents give their children's schools a grade of A or B. Even among parents of average or below-average students, 60% give their children's schools an A or a B.

How Parents, Students, and Teachers Grade Their Own Schools



*Based on school oldest child attends

**Gallup Youth Survey, 1985

***PDK/Gallup Poll of Teachers' Attitudes Toward the Public Schools, 1984

The question:

Using the A, B, C, D, and FAIL scale again, what grade would you give the school your oldest child attends?

Public School Parents	A %	B %	C %	D %	FAIL %	Don't Know %
TOTAL	**23**	**48**	**19**	**5**	**2**	**3**
Education						
College	22	54	15	3	1	5
High school	23	44	22	7	3	1
Occupation						
White collar	26	56	9	4	2	3
Blue collar	23	41	25	7	2	2
Oldest Child Attends						
High school	24	45	22	7	1	1
Elementary school	23	52	18	4	3	*
Oldest Child's Class Standing						
Above average	33	51	13	2	1	*
Average or below	13	47	28	9	3	*

*Less than one-half of 1%.

Rating of Teachers in the Local Public Schools

Almost half of all respondents (49%) gave teachers in the local public schools a grade of A or B in 1985. This percentage is statistically equal to the 50% of respondents who gave teachers in the local schools a grade of A or B last year — and up considerably from 1981, when only 39% of respondents did so.

Parents of children in the public schools were more likely to award grades of A or B to teachers (58%) than were respondents with no children in school (47%).

The question:

Now, what grade would you give the teachers in the public schools in this community?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
A	12	13	12	8
B	37	34	46	33
C	26	24	31	29
D	7	7	5	15
FAIL	3	3	4	4
Don't know	15	19	2	11

NATIONAL TOTALS	1985 %	1984 %	1981 %
A	12	13	11
B	37	37	28
C	26	31	31
D	7	7	9
FAIL	3	3	6
Don't know	15	9	15

Rating of Principals and Administrators in the Local Public Schools

The grades given school principals and other administrators are similar to those given teachers. Almost half (48%) of all respondents gave principals and other administrators grades of A or B. Once again, respondents with children in the public schools were more likely to award above-average grades to principals and other administrators (56%) than were respondents with no children in school (45%).

The question:

Now, what grade would you give the principals and administrators in the public schools in this community?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
A	14	14	16	6
B	34	31	40	32
C	25	23	27	31
D	9	9	10	19
FAIL	4	4	4	5
Don't know	14	19	3	7

NATIONAL TOTALS	1985 %	1984 %	1981 %
A	14	13	10
B	34	34	26
C	25	29	28
D	9	8	12
FAIL	4	5	9
Don't know	14	11	15

Rating of Teachers and Principals In the Schools Their Children Attend

When parents are referring specifically to the schools their own children attend, fully 68% give the teachers a grade of A or B, and 69% say that the performance of principals and administrators deserves a grade of A or B.

Among parents whose children are above average in academic attainment, eight in 10 would give their children's teachers a grade of A or B, and 77% would give administrative personnel a grade of A or B.

The questions:

Using the A, B, C, D, FAIL scale again, what grade would you give the teachers in the school your oldest child attends?

Public School Parents	A %	B %	C %	D %	FAIL %	Don't Know %
TOTAL	**22**	**46**	**21**	**5**	**2**	**4**
Education						
College	24	48	17	4	1	6
High school	18	46	25	5	3	3
Occupation						
White collar	21	53	17	2	1	6
Blue collar	24	40	25	6	3	2
Oldest Child Attends						
High school	16	46	26	7	3	2
Elementary school	25	48	20	3	2	2
Oldest Child's Class Standing						
Above average	29	51	16	3	*	1
Average or below	14	42	29	7	5	3

*Less than one-half of 1%.

Using the A, B, C, D, FAIL scale again, what grade would you give the principals and administrators in the school your oldest child attends?

Public School Parents	A %	B %	C %	D %	FAIL %	Don't Know %
TOTAL	**23**	**46**	**19**	**4**	**4**	**4**
Education						
College	24	41	22	4	2	7
High school	22	49	15	4	7	3
Occupation						
White collar	27	45	14	4	3	7
Blue collar	23	43	20	5	6	3
Oldest Child Attends						
High school	20	48	18	5	7	2
Elementary school	25	46	20	4	3	2
Oldest Child's Class Standing						
Above average	32	45	16	4	2	1
Average or below	13	49	22	5	8	3

Teachers' Salaries in This Community

Again this year the U.S. public tends to feel that public school teachers are underpaid. In 1985 about four Americans in 10 (43%) feel that teachers' salaries are about right, but only 6% say that they are too high, whereas 33% say that they are too low.

This pattern of responses is virtually the same as those found in previous surveys on the subject. Many more Americans believe that teachers are underpaid than believe that they are overpaid. Interestingly, this view is held by those who do not have children enrolled in the public schools, as well as by those who do.

Not surprisingly, teachers' attitudes regarding teacher salaries are more one-sided than the public's attitudes on that topic. In the 1984 Gallup Poll of Teachers' Attitudes Toward the Public Schools, only 9% of the teachers surveyed felt that their pay was about right, while 90% deemed it too low and less than 1% said that it was too high (see the October 1984 *Kappan*, p. 102).

The question:

Do you think salaries in this community for teachers are too high, too low, or just about right?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Too high	6	5	7	5
Too low	33	30	38	42
Just about right	43	44	42	37
No opinion	18	21	13	16

NATIONAL TOTALS	1985 %	1984 %	1983 %	1981 %	1969 %
Too high	6	7	8	10	2
Too low	33	37	35	29	33
Just about right	43	41	31	41	43
No opinion	18	15	26	20	22

Attitudes Toward Merit Pay Programs

Six Americans in 10 favor merit pay for teachers — about the same proportion as in 1984, when 65% supported the idea. Surprisingly, respondents with no children in school favor merit pay for teachers by almost as large a percentage as do public school parents.

According to the 1984 Gallup Poll of Teachers' Attitudes Toward the Public Schools, teachers' views on merit pay are almost exactly the reverse of the public's views (see the October 1984 *Kappan*, p. 103). While the public supports merit pay for teachers by a ratio of more than 2-1, teachers oppose the idea by a ratio of exactly 2-1 (64% to 32%).

The question:

How do you, yourself, feel about the idea of merit pay for teachers? In general, do you favor or oppose it?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Favor	60	59	62	69
Oppose	24	23	25	21
No opinion	16	18	13	10

NATIONAL TOTALS	1985 %	1984 %
Favor	60	65
Oppose	24	22
No opinion	16	13

Attitudes Toward Competency Testing of Teachers

Almost universally, the American public supports the use of basic competency tests to measure teachers' knowledge and intellectual ability. In the population as a whole and in every subgroup surveyed, about nine respondents in 10 favor such testing.

The question:

Before they are hired by a school district, do you feel all teachers should or should not be required to pass a basic competency test to measure such things as their general knowledge and ability to think?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Should	89	88	89	92
Should not	6	6	7	5
Don't know	5	6	4	3

Subjects the Public Would Require

As has been the case in previous surveys, mathematics and English once again head the list of subjects that the public would require of all high school students. For students who plan to attend college, 91% of the respondents mentioned mathematics as a requirement, and 88% mentioned English. For *non*-college-bound students, 85% of the public would require mathematics, and 81% would require English.

For the college-bound, a large majority of respondents would also require history/U.S. government (76%), science (76%), and computer training (71%). A smaller number, but still a majority, would require business (59%), career education (57%), and foreign language (53%) as well.

The public is less inclined to require history/U.S. government (61%), science (51%), and computer training (57%) of students who do not plan to attend college — though a majority still favor doing so. The public tends as often to favor business and career education coursework for the non-college-bound as for those who plan to attend college.

The clear third-place choice of subjects, behind mathematics and English, for the non-college-bound is vocational training, favored by 75%. Only 17% think that foreign language should be a requirement for students who do not plan to attend college, however.

The questions:

Would you look over this card, which lists high school subjects. If you were the one to decide, what subjects would you require every high school student *who plans to go on to college* to take?

What about those public high school students who do *not plan to go to college* when they graduate? Which courses would you require them to take?

	Should Be Required	
	For Those Planning To Go to College **%**	**For Those Not Planning to Go To College** **%**
Mathematics	91	85
English	88	81
History/U.S. government	76	61
Science	76	51
Computer training	71	57
Business	59	60
Career education	57	57
Foreign language	53	17
Health education	48	43
Physical education	40	40
Vocational training	27	75
Music	24	15
Art	23	15

	Should Be Required							
	For Those Planning To Go to College				**For Those Not Planning to Go To College**			
	1985 **%**	**1984** **%**	**1983** **%**	**1981** **%**	**1985** **%**	**1984** **%**	**1983** **%**	**1981** **%**
Mathematics	91	96	92	94	85	92	87	91
English	88	94	88	91	81	90	83	89
History/U.S. government	76	84	78	83	61	71	63	71
Science	76	84	76	76	51	61	53	58
Computer training	71	*	*	*	57	*	*	*
Business	59	68	55	60	60	76	65	75
Career education	57	*	*	*	57	*	*	*
Foreign language	53	57	50	54	17	19	19	21
Health education	48	52	43	47	43	50	42	46
Physical education	40	43	41	44	40	44	40	43
Vocational training	27	37	32	34	75	83	74	64
Music	24	22	18	26	15	18	16	20
Art	23	24	19	28	15	18	16	20

*These subjects were not included in earlier surveys.

Sex Education

The 1985 findings show an increase in support for sex education in both the elementary school and the high school since the last survey on the subject, conducted in 1981. In 1981, 70% supported including sex education in the high school curriculum, and 45% favored sex education for elementary school students. Today, the comparable figures are 75% for high school and 52% for elementary school.

The questions:

Do you feel the public high schools should or should not include sex education in their instructional program?

	National Totals **%**	**No Children In School** **%**	**Public School Parents** **%**	**Nonpublic School Parents** **%**
Should	75	72	81	80
Should not	19	21	16	15
Don't know	6	7	3	5

Do you feel the public elementary schools should or should not include sex education in grades 4 through 8?

	National Totals **%**	**No Children In School** **%**	**Public School Parents** **%**	**Nonpublic School Parents** **%**
Should	52	50	54	64
Should not	43	43	43	31
Don't know	5	7	3	5

	Sex Education			
	In High School		**In Elementary School**	
	1985 **%**	**1981** **%**	**1985** **%**	**1981** **%**
Should include	75	70	52	45
Should not include	19	22	43	48
Don't know	6	8	5	7

Topics to Be Covered in Sex Education

When those respondents who support the idea of sex education are asked to indicate which topics should be covered, large differences emerge between the topics deemed acceptable for high school and those deemed acceptable for the elementary classroom. The sole exception is the biology of reproduction, which more than eight Americans in 10 feel should be covered at both levels.

More than 80% of the respondents favor covering the topics of venereal disease and birth control at the high school level, but slightly less than 50% feel that these topics should be included in the elementary sex education curriculum. About six Americans in 10 favor discussing premarital sex, the nature of sexual intercourse, and abortion at the high school level. At the elementary level, inclusion of those topics is favored by only 34%, 45%, and 28% respectively.

Parents of children enrolled in the public schools do not differ significantly from respondents who do not have children in school when it comes to the specific topics that they think should be covered in sex education courses. Parents who send their children to nonpublic schools tend to be somewhat more liberal on this score than either of the other two groups of respondents.

The question:

Which of the following topics, if any, listed on this card should be included in high school? In elementary school?

Should Be Included In High School	**National Totals** **%**	**No Children In School** **%**	**Public School Parents** **%**	**Nonpublic School Parents** **%**
Birth control	85	85	83	88
Venereal disease	84	85	81	89

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Biology of reproduction	82	82	79	90
Premarital sex	62	63	59	69
Nature of sexual intercourse	61	62	57	73
Abortion	60	61	57	68
Homosexuality	48	48	45	62

Should Be Included In Elementary School	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Biology of reproduction	89	87	91	99
Venereal disease	49	50	45	60
Birth control	48	49	44	51
Nature of sexual intercourse	45	48	37	54
Premarital sex	34	35	28	48
Abortion	28	28	26	42
Homosexuality	28	29	22	41

	Topics That Should Be Included			
	In High School		In Elementary School	
	1985 %	1981 %	1985 %	1981 %
Birth control	85	79	48	45
Venereal disease	84	84	49	52
Biology of reproduction	82	77	89	83
Premarital sex	62	60	34	40
Nature of sexual intercourse	61	53	45	36
Abortion	60	54	28	26
Homosexuality	48	45	28	33

Importance of Extracurricular Activities

About eight Americans in 10 feel that extracurricular activities are important to a young person's education — roughly the same percentage as in the two previous surveys (1984 and 1978) that dealt with this topic. Of the 80% in 1985 who say that extracurricular activities are important, 39% deem them "very" important, and 41% deem them "fairly" important.

The question:

I'd like your opinion about extracurricular activities such as the school band, dramatics, sports, and the school newspaper. How important are these to a young person's education — very important, fairly important, not too important, or not at all important?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Very important	39	37	44	57
Fairly important	41	43	37	31
Not too important	14	14	16	10
Not at all important	3	3	2	2
No opinion	3	3	1	*

NATIONAL TOTALS	1985 %	1984 %	1978 %
Very important	39	31	45
Fairly important	41	46	40
Not too important	14	18	9
Not at all important	3	4	4
No opinion	3	1	2

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*Less than one-half of 1%.

Standards for Participation In Extracurricular Activities

Americans are virtually unanimous in supporting a requirement that students who participate in extracurricular activities maintain passing grades and acceptable school attendance records. Nine respondents in 10 in every population subgroup approve of this idea.

The question:

Do you feel that high school students who participate in sports and extracurricular activities should or should not be required to maintain a minimum grade-point average and school attendance record?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Should be required	91	90	91	97
Should not be required	6	6	7	1
Don't know	3	4	2	2

Attitudes Toward Coeducational Sports

Americans are increasingly receptive to the idea of coeducational athletic teams in U.S. public high schools. Since the last time the question was asked, in 1976, the public has become increasingly favorable to the idea of girls and boys playing on the same teams in virtually every sport.

This increasingly favorable attitude prevails for such noncontact sports as tennis and track, such "semi-contact" sports as basketball and baseball, and such heavy contact sports as football and wrestling. About eight Americans in 10 do not object to coeducational teams in the noncontact sports of tennis and swimming; seven Americans in 10 do not object to coeducational teams in track. Almost half of all Americans think that girls should be allowed to play on high school baseball and basketball teams with boys. About one American in six favors allowing girls to play on high school football teams with boys, and about one American in 10 feels that wrestling teams should be coeducational.

For all sports covered by the survey, 18- to 29-year-olds proved more likely than older respondents to favor coeducational teams. Findings from the 1985 Gallup Youth Survey, which samples U.S. 13- to 18-year-olds, also suggest that younger Americans are the group most likely to favor coeducational teams.

The question:

Do you think high school boys and girls should or should not be allowed to play on the same school teams in the following sports?

Should Be Allowed	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Tennis	85	84	87	89
Swimming	79	78	80	81
Track	68	67	69	76
Baseball	48	47	49	57
Basketball	40	40	39	48
Football	16	16	14	15
Wrestling	11	12	8	10

Further breakdowns:

Should Be Allowed	U.S. Public %	13- to 18-Year-Olds* %
Tennis	85	95
Swimming	79	88
Track	68	86
Baseball	48	49
Basketball	40	43
Football	16	21
Wrestling	11	16

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*Findings from the Gallup Youth Survey, April 1985.

Attitudes Toward Homework

In 1983 the National Commission on Excellence in Education recommended that public school students be assigned far more homework than they were currently given. Our 1985 survey shows the public roughly divided on that recommendation in the case of elementary students, with 40% in favor and 38% opposed. The public supports increased homework for high school students by a ratio of almost 5-3, however, with 47% in favor and 31% opposed.

Parents of children enrolled in the public schools are about as likely as those who have no children in school to favor more homework. However, parents whose children receive average or below-average grades are somewhat more likely to favor increased homework — both in elementary school and in high school — than are parents whose children's academic performance is above average.

Nonwhites are more likely than whites — by margins of 67% to 45% at the high school level and 66% to 36% at the elementary school level — to favor increased homework. Residents of inner cities and people living in the western U.S. are also more likely than other population subgroups to support increased homework.

The questions:

Do you think elementary school children in the public schools here should be assigned more homework or not?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Should be	40	37	45	53
Should not be	38	35	48	22
Don't know	22	28	7	25

Do you think high school students in the public schools here should be assigned more homework or not?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Should be	47	46	49	60
Should not be	31	29	37	19
Don't know	22	25	14	21

Time Spent on Homework And on Televiewing

About six public school parents in 10 (61%) require that their children devote a minimum amount of time to homework on school nights. These parents require an average of one hour and 25 minutes of homework nightly.

By contrast, only about five public school parents in 10 (49%) limit the amount of time their children can spend watching television on school nights. These parents allow their children to spend an average of one hour and 50 minutes nightly on this activity.

Interestingly, parents' socioeconomic backgrounds and their children's levels of academic achievement bear little relationship to the requirements that parents set with regard to children's homework and televiewing. Parents who have attended college, who hold white-collar jobs, or whose children are above-average students are no more likely than other subgroups to require a minimum amount of homework or to establish a maximum amount of time for children's televiewing.

The questions:

Do you require that your oldest child spend a minimum amount of time on homework during the school week?

Do you place a definite limit on the amount of time your child spends viewing television during the school week?

Public School Parents	Minimum Time For Homework %	Maximum Time For Television %
Yes	61	49
No	36	46
Undesignated	3	5

Biggest Problems Facing the Public Schools in 1985

The U.S. public continues to regard discipline as the most important problem facing the public schools. This has been true in every poll but one since this series began in 1969.

One-quarter of all citizens polled named "discipline" the biggest problem facing the public schools, roughly the same percentage as in previous polls. The next most frequently mentioned problem was "use of drugs," a discipline-related area mentioned by 18% of the public in this year's poll. The most frequently cited problem that pertains to the quality of schooling is "poor curriculum/poor standards," mentioned by 11% of the public. The only other responses mentioned by more than 5% of the public are "difficulty in getting good teachers" and "lack of proper financial support," mentioned by 10% and 9% of the public respectively.

The question:

What do you think are the biggest problems with which the *public* schools in this community must deal?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Lack of discipline	25	23	25	43
Use of drugs	18	18	20	11
Poor curriculum/poor standards	11	11	11	10
Difficulty in getting good teachers	10	10	12	12
Lack of proper financial support	9	9	9	8
Pupils' lack of interest/truancy	5	6	4	3
Large schools/overcrowding	5	4	7	7

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Integration/busing	4	5	2	*
Teachers' lack of interest	4	3	6	8
Drinking/alcoholism	3	3	2	5
Parents' lack of interest	3	3	3	6
Lack of respect for teachers/other students	3	3	2	1
Mismanagement of funds/programs	2	2	4	5
Low teacher pay	2	1	2	4
Moral standards	2	2	1	2
Lack of needed teachers	2	1	3	1
Communication problems	2	1	3	1
Crime/vandalism	2	1	2	*
Lack of proper facilities	1	1	1	1
Problems with administration	1	*	1	1
School board policies	1	1	1	*
Government interference	1	1	*	1
Teacher strikes	1	1	*	1
Parental involvement in school activities	1	1	1	1
Too many schools/declining enrollment	1	1	1	1
Transportation	1	1	1	*
Non-English-speaking students	1	1	1	1
Fighting	1	1	2	*
There are no problems	2	1	4	*
Miscellaneous	4	3	5	10
Don't know	14	19	4	4

(Figures add to more than 100% because of multiple answers.)

*Less than one-half of 1%.

Rights and Privileges of Public School Students

By a margin of more than 3-1 (40% to 12%), the U.S. public feels that local public school students have too many rights and privileges rather than not enough. One-fourth of the public feels that students have about the right amount of privileges.

This relationship has remained fairly stable since 1975, when the question was last asked. However, the 1985 findings differ substantially from those of the 1972 survey. At that time, almost as large a percentage of the public felt that students did not have enough rights as felt that they had too many.

The question:

Generally speaking, do the local public school students in this community have too many rights and privileges, or not enough?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Too many	40	38	42	55
Not enough	12	12	13	5
Just about right	25	23	35	22
No opinion	23	27	10	18

NATIONAL TOTALS	1985 %	1975 %	1972 %
Too many	40	45	41
Not enough	12	10	11
Just about right	25	27	33
No opinion	23	18	15

Rights of Public School Authorities To Examine Student Property

By a 4-1 margin (78% to 18%), the public supports the right of school authorities to open students' lockers or to examine their personal property for contraband — drugs, liquor, or stolen property. Recently, this controversy has arisen in a number of communities. Parents are even more in favor of granting this authority to the schools than are nonparents.

The question:

Do you feel that teachers or school authorities should or should not be allowed to open students' lockers or examine personal property if they suspect drugs, liquor, or stolen goods are hidden there?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Should	78	76	84	89
Should not	18	19	15	10
Don't know	4	5	1	1

Preferred Solutions To Discipline Problems

When Americans are asked to choose the solutions they prefer from a list of suggested ways to solve discipline problems, they tend to choose the least harsh measures.

The public responds most favorably to those solutions that involve discussion and instruction, for both teachers and parents. The most frequently chosen solutions were "classes for teachers on how to deal with problem children," chosen by 64% of the public; "discussion groups with parents of problem children," chosen by 62% of the public; and "required classes for parents of problem children," chosen by 50% of the public.

The next most popular solutions would deal with problem students *within* the school system, by suspending students who exhibit extreme behavior problems (46%), by forming special classes (45%), or by creating work-study programs in which students attend school half-time and work half-time (44%).

Forty-two percent of the public would favor beefing up the court system, the probation system, and work programs for delinquent youths. Only 21% of the public would favor establishing alternative schools for students with discipline problems.

The question:

Lack of discipline is often cited as a problem confronting the public schools. Please look over this list and tell me which of these possible solutions you think would be most helpful in improving school discipline.

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Classes for teachers on how to deal with problem children	64	62	67	73

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Discussion groups with parents of problem children	62	61	66	71
Required classes for parents of problem children	50	50	51	59
Suspension of students with extreme behavior problems	46	44	50	50
Formation of special classes for students who have behavior problems	45	45	43	43
Creation of a system of work-study programs, with problem children doing useful work half-time and attending school half-time	44	44	43	53
Classes for administrators to help them create more orderly behavior	43	43	43	48
Tougher courts, probation systems, and work programs for delinquents	42	41	44	52
Creation of a curriculum more relevant to the interests and concerns of students	32	31	34	31
Alternative schools	21	21	20	25

(Figures add to more than 100% because of multiple answers.)

Caring for Preschool and Latchkey Children

Americans were asked whether or not they favored two proposals that would involve the public schools in an almost custodial role. The first proposal would make tax-supported child-care centers available for preschool children. The second would extend the school day for latchkey children — children whose parents get home after the conclusion of the school day.

The public is about evenly divided on both proposals. Forty-three percent of the public favor the provision of tax-supported child care for preschoolers; 45% are opposed. Virtually the same split was recorded when this proposal was tested in 1981 and in 1976.

Forty-three percent of the public favor and 46% oppose the proposal to provide extended school hours for latchkey children. Paradoxically, parents of public school children are only slightly more in favor of both proposals than are people with no children in the public schools.

The questions:

A proposal has been made to make child-care centers available for all preschool children as part of the public school system. This program would be supported by taxes. Would you favor or oppose such a program in your school district?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Favor	43	42	47	44
Oppose	45	44	47	50
Don't know	12	14	6	6

NATIONAL TOTALS	1985 %	1981 %	1976 %
Favor	43	46	46
Oppose	45	47	49
Don't know	12	7	5

A proposal has been made to extend the school day for so-called latchkey children, that is, children whose parents are still at work when the children get home from school. This program would be supported by taxes. Would you favor or oppose such a program in your school district?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Favor	43	42	46	53
Oppose	46	45	48	41
Don't know	11	13	6	6

Financing the Public Schools

The U.S. public opposes raising taxes for local public schools by a margin of roughly 5-4. In previous surveys, the public has always opposed raising taxes for the local schools, though in 1969 the split was almost even (45% in favor, 49% opposed). The opposition to increased taxes reached its highest level in 1981, at the height of the property tax revolt, when the public opposed raising taxes to support the public schools by a margin of 2-1.

The question:

Suppose the local public schools said they needed much more money. As you feel at this time, would you vote to raise taxes for this purpose, or would you vote against raising taxes for this purpose?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
For raise in taxes	38	35	46	37
Against raise in taxes	52	53	47	52
No opinion	10	12	7	11

Financial Support of the Public Schools

NATIONAL RESULTS	Favor Raising Taxes %	Opposed to Raising Taxes %	Don't Know %
1985 survey	38	52	10
1984 survey	41	47	12
1983 survey	39	52	9
1981 survey	30	60	10
1972 survey	36	56	8
1971 survey	40	52	8
1970 survey	37	56	7
1969 survey	45	49	6

Support for Special Programs

The public attitude toward spending public school funds for special programs has changed substantially since 1982. In 1982 the public opposed by a narrow margin (48% to 42%) spending additional funds for special programs for children with learning problems. In that same year the public strongly opposed (64% to 19%) spending additional funds on programs for gifted and talented students.

Just three years later, however, the public favors additional spending for those with learning problems by a margin of 51% to 40%. Although the public remains opposed to increased spending for the gifted and talented, public support for increased spending in this area has risen from 19% to 30%.

The questions:

How do you feel about the spending of public school funds for special instruction and homework programs for students with learning problems? Do you feel that more public school funds should be spent on students with learning problems than on average students — or the same amount?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
More spent	51	52	50	49
Same amount spent	40	38	44	43
Less spent	2	2	2	1
Don't know	7	8	4	7

NATIONAL TOTALS	1985 %	1982 %
More spent	51	42
Same amount spent	40	48
Less spent	2	4
Don't know	7	6

How do you feel about the spending of public school funds for special instruction and homework programs for gifted and talented students? Do you feel that more school funds should be spent on gifted and talented students than on average students — or the same amount?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
More spent	30	30	32	36
Same amount spent	58	58	58	56
Less spent	5	5	5	3
Don't know	7	7	5	5

NATIONAL TOTALS	1985 %	1982 %
More spent	30	19
Same amount spent	58	64
Less spent	5	11
Don't know	7	6

Private and Church-Related Schools

The U.S. public feels that the recent increase in the number of nonpublic (private and church-related) schools is good for the nation. The public approves the increase by a 2-1 ratio (55% to 27%), a slightly higher margin of approval than in 1981, the last time this question was asked.

The question:

In recent years, the number of nonpublic schools, that is, private and church-related schools, has increased in many parts of the country. In general, do you think this increase in nonpublic schools is a good thing or a bad thing for the nation?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Good thing	55	54	56	71
Bad thing	27	27	28	21
No opinion	18	19	16	8

NATIONAL TOTALS	1985 %	1981 %
Good thing	55	49
Bad thing	27	30
No opinion	18	21

The September *Kappan* report of the 17th poll of attitudes toward education had to be cut severely. Readers who would like a copy of the full 126-page report can obtain it by writing me in care of Phi Delta Kappa, P.O. Box 789, Bloomington, IN 47402, enclosing $7.50.

In view of increasing costs for a college education and reduced federal funds for student grants and loans, the answers to four questions omitted from the September *Kappan* may be of sufficient interest to report here.

1. All respondents were asked, "What do you feel are the chief advantages of a college education, if any?" The national totals: job opportunities/better jobs, 52%; higher income, 18%; more knowledge, 14%; preparation for life, 13%; opens doors/provides opportunities, 10%; specialized training, 10%; maturation, 6%; higher social level/status, 6%; exposure to new experiences/ideas, 6%; teaches person to think/learn, 3%; no advantages 4%; miscellaneous and don't know, 4%.

2. Parents of public school children were asked: "Would you like to have your oldest child go on to college after graduating from high school?" The response: yes, 88%; no, 5%; don't know, 7%.

3. These parents were then asked, "Do you think he/she will go to college?" The response: yes, 66%; no, 17%; don't know, 17%. Persons with a college education or white-collar occupation were much more likely to say yes than those with only a high school education or blue-collar job. If the oldest child had above-average class standing, parents were twice as likely to answer yes.

4. Finally, parents of public school children were asked, "How difficult will it be to pay for your child's college education?" Seventy-seven percent said either very difficult or fairly difficult (very difficult, 40%; fairly difficult, 37%). Only 15% said not very difficult, and 6% said not difficult at all. Two percent didn't know. — Stanley Elam, PDK Poll Coordinator.

Illustration by Leslie Cober

Home Schools

Although the U.S. public views private and church-related schools in an increasingly favorable light, the same cannot be said of home schooling. Only 16% of the public think that the movement toward home schooling is good for the nation; 73% view this trend as a bad thing.

The question:

Recently there has been a movement toward "home schools," that is, schools where parents keep their children at home and teach the children themselves. In general, do you think this movement is a good thing or a bad thing for the nation?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Good thing	16	16	14	22
Bad thing	73	72	75	71
Don't know	11	12	11	7

Standards for Nonpublic And Home Schools

Large majorities of the U.S. public would require both the private and church-related schools and the home schools to meet the same standards for accreditation and teacher certification as the nation's public schools must meet. Ninety percent of the public would require the same standards for private and church-related schools as for public schools, and 82% would favor the same requirements for home schools.

It is interesting that *nonpublic school parents* are as much in favor of requiring the same standards for private and church-related schools and for home schools as are the general public and the parents of public school children.

The questions:

Do you think that the nonpublic schools should or should not be required to meet the same teacher certification and accrediting standards as the public schools?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Should	90	90	91	91
Should not	6	6	6	8
Don't know	4	4	3	1

Do you think that the "home schools" should or should not be required to meet the same teacher certification standards as the public schools?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Should	82	81	84	87
Should not	10	10	11	9
Don't know	8	9	5	4

Support for Vouchers

Today the U.S. public supports the adoption of a voucher system by a narrow margin (45% to 40%). This represents a slight decline from the peak of approval for vouchers in 1983, when 51% of the public favored a voucher plan and only 38% opposed it.

The question:

In some nations, the government allots a certain amount of money for each child for his education. The parents can send the child to any public, parochial, or private school they choose. This is called the "voucher system." Would you like to see such an idea adopted in this country?

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Favor	45	42	49	63
Oppose	40	40	41	32
No opinion	15	18	10	5

NATIONAL TOTALS	1985 %	1983 %	1981 %	1971 %	1970 %
Favor	45	51	43	38	43
Oppose	40	38	41	44	46
No opinion	15	11	16	18	11

Importance of a College Education

The percentage of the U.S. public that views a college education as important continues to increase. In the current survey nine Americans in 10 (91%) say that they feel that a college education is very important or fairly important. Nonparents are as likely to feel that a college education is important as are parents of public school children.

The question:

How important is a college education today — very important, fairly important, or not too important?

OPINION POLL
SCHWADRON

"We spent a lot of money educating him, so if you want Junior's opinion, you'll have to pay for it."

	National Totals %	No Children In School %	Public School Parents %	Nonpublic School Parents %
Very important	64	64	66	64
Fairly important	27	27	24	29
Not too important	7	7	9	7
Don't know	2	2	1	*

NATIONAL TOTALS	1985 %	1983 %	1978 %
Very important	64	58	36
Fairly important	27	31	46
Not too important	7	8	16
Don't know	2	3	2

*Less than one-half of 1%.

Research Procedure

The Sample. The sample used in this survey embraced a total of 1,528 adults (18 years of age and older). It is described as a modified probability sample of the United States. Personal, in-home interviewing was conducted in all areas of the nation and in all types of communities. A description of the sample is available from Phi Delta Kappa.

Time of Interviewing. The fieldwork for this study was carried out during the period of 17-26 May 1985.

The Report. The heading "Nonpublic School Parents" includes parents of students who attend parochial schools and parents of students who attend private or independent schools.

Due allowance must be made for statistical variation, especially in the case of findings for small groups in which relatively few respondents were interviewed, e.g., nonpublic school parents.

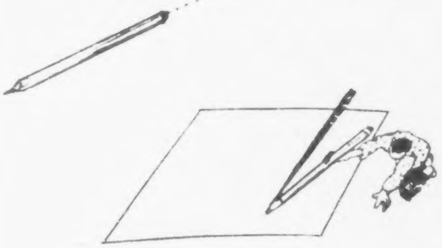
The findings of this report apply only to the U.S. as a whole and not to individual communities. Local surveys, using the same questions, can be conducted to determine how local areas compare with national norms.

Acknowledgments

Eighty-five members and officers of Phi Delta Kappa suggested questions and topics for this year's PDK/Gallup education poll. These suggestions were examined and rated by a panel of distinguished educators before submission to Alec Gallup, who framed the final set of questions.

The poll panel this year was composed of Ben Brodinsky, education consultant; Anne Campbell, education consultant; Emeral Crosby, principal, Northern High School, Detroit, Mich.; Susan Glass, director of public relations, United Federation of Teachers; Bill Honig, superintendent of public instruction, State of California; K. Forbis Jordan, senior specialist in education, Congressional Research Service, Library of Congress; C. Peter Magrath, president, University of Missouri System; Diane Ravitch, professor of history and education, Teachers College, Columbia University; Sharon P. Robinson, director, Division of Instruction and Professional Development, National Education Association; Carole S. Seffrin, assistant superintendent, Metropolitan School District of Martinsville, Ind.; M. Donald Thomas, deputy superintendent, Division of Public Accountability, South Carolina Department of Education; and Edward A. Wynne, professor of education, University of Illinois at Chicago.

PDK members suggesting questions for the poll were: Leodies U. Arburtha, Janet Arena, Douglas Bedient, Wayne Boshears, Douglas A. Boyer, Anita F. Briggs, George Brower, Charles A. Brown, Steven M. Brown, Norma Bryant, Bob N. Cage, Patrick W. Carlton, Dennis R. Chamberlain, Janice L. Chappell, Sonja Clary, George W. Crane, Louis Della Barea, Peggy M. Doss, Daniel Drake, William E. Dugger, Jr., Don Duncan, Fred Dundas, Walt Dunne, J. Hugh Dwyer, Cleo Edeburn, Mark D. Engelhardt, Alice Fessenden, J. Leo Freiwald, John T. Glore, Helen L. Harriger, Lester W. Harvey, Fred Hattabaugh, John E. Hess, John Hillison, Veryle E. Homuth, Deena Horst, James Hutcheson, Ron Joekel, R.E. Johnson, Roger H. Jones, George Kersey, Jr., Sandra Koczwara, Jerome G. Kopp, Edward Krojansky, Evalee Lasater, Bob Leiferman, Robert Lepse, Nancy M. Livingston, Barbara Ludlow, Vernon D. Luft, Robert L. Mauller, Thomas C. McCullough, Donald F. McDermott, Ed Meadows, S.S. Moorty, Howard Mustian, Jr., Robert F. Nicely, Jr., Carol O'Connell, Ronald L. Peterson, Jeri Pfeifer, Judith Ramirez, Bill Reedy, Hal Riddle, James M. Schneider, Lawrence J. Schweinhart, Philip D. Selim, Pat Severson, Elizabeth D. Shoeman, Daniel L. Shull, Edward G. Simmons, Michael J. Stolee, Anita Stone, Gerald Sughroue, Margo P. Tech, George Thomas, Lloyd R. Thompson, Rodney W. Tulloch, Jacki Vallentine-Yardley, J.G. Walden, Stephen P. Wareham, Alfred Weingart, Wayne H. White, M.E. Wolf, Terry L. Wolfenden, and Gayle Woolley. — *Stanley M. Elam*, coordinator, Gallup-Phi Delta Kappa Education Poll.



How to Order Reprints

The minimum order is 25 copies of the poll for $7.50. Additional copies are 20 cents each. This price includes postage for parcel post delivery. Where possible, enclose a check or money order.

If faster delivery is desired, do not include a remittance with your order. You will be billed at the above rates plus any additional cost involved in the method of delivery.

Phi Delta Kappa has published a 15-year (1969-1984) compilation of the Gallup polls on education. In this volume the poll questions are arranged topically rather than chronologically, making it easier to look up poll results on specific topics. *The Gallup Polls of Attitudes Toward Education, 1969-1984: A Topical Summary* can be ordered for $6 each ($5 for PDK members).

Orders for reprints or for the book should be addressed to Phi Delta Kappa, P.O. Box 789, Bloomington, IN 47402. Ph. 812/339-1156.

Illustration by Leslie Cober

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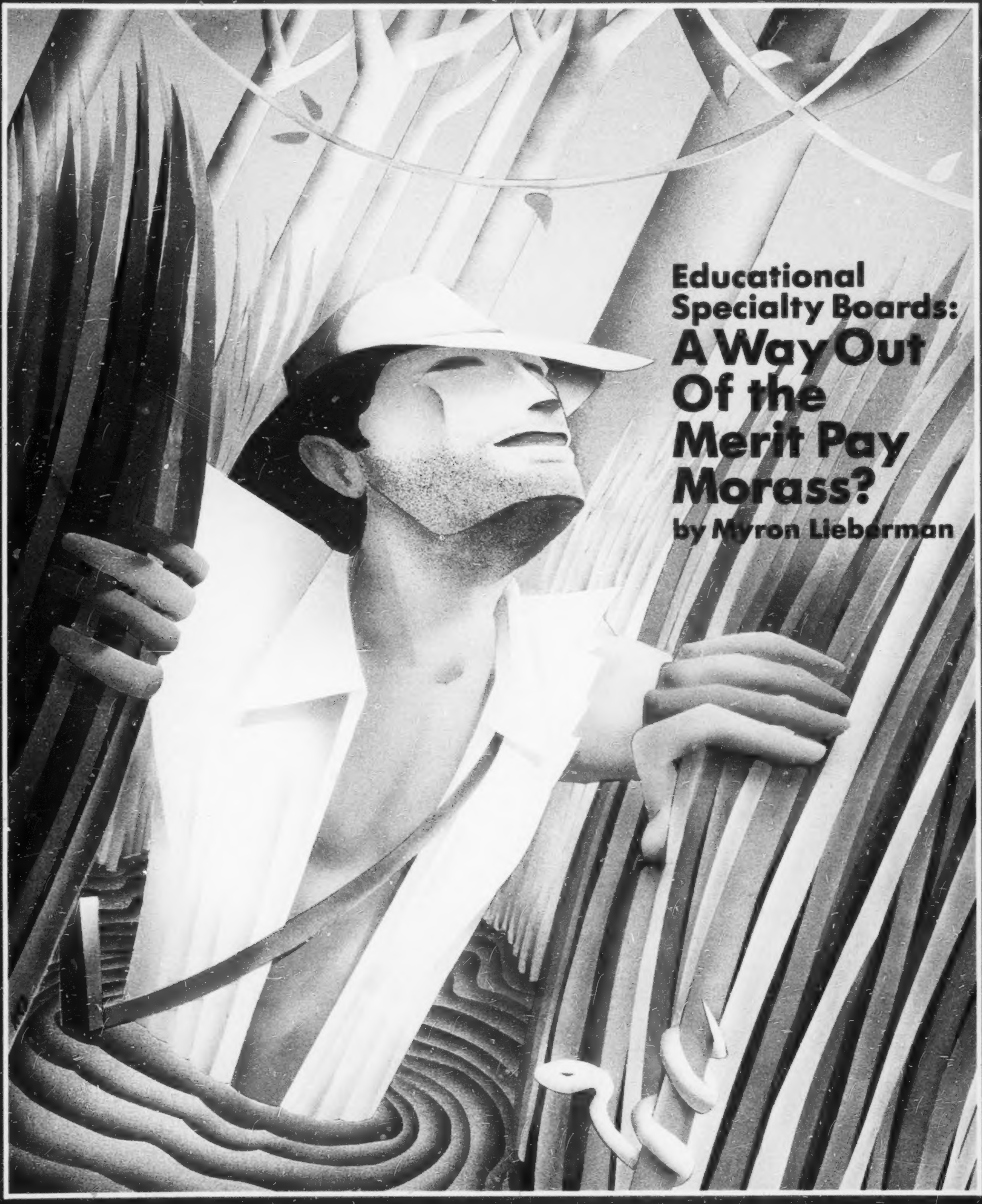

Educational Specialty Boards: A Way Out Of the Merit Pay Morass?

by Myron Lieberman

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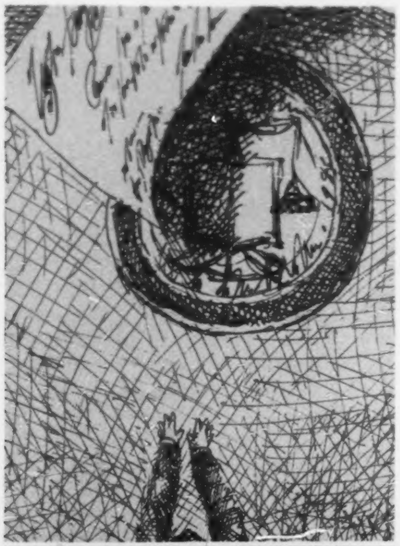

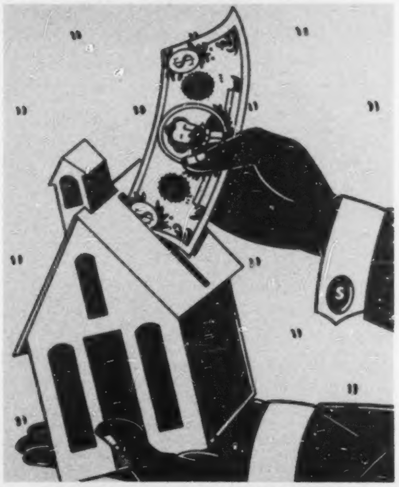

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Cover Illustration: Ned Shaw

Teacher Flight — Yes Or Guess?

by M. Gilbert Wilkins and Ann Korschgen

Wisconsin teachers have not been leaving the profession in significant numbers, claim the authors. There appears to be ample time to address the problem of teacher flight.

MUCH HAS BEEN written about academically able teachers leaving the profession in significant numbers, in publications ranging from the *Wall Street Journal* to the *Phi Delta Kappan*.[1] Although reports and articles about ways to increase the retention of academically able teachers continue to appear, some researchers are beginning to question whether or not the retention problem has been overstated.[2]

Everyone has assumed that the number of teachers leaving the profession is high, especially among the most able. But who is the keeper of these numbers? After consulting with the Wisconsin Department of Public Instruction, the National Center for Education Statistics, and the Education Commission of the States, we concluded that no one seems to have collected recent data on just how many teachers are leaving their jobs.

The Wisconsin Association of School Personnel Administrators decided to undertake a study that would answer the following three questions: 1) What was the rate of teacher resignation in Wisconsin public schools for the 1982-83 and 1983-84 school years? 2) Of those teachers who resigned, what percentage left the field of education altogether? 3) According to district administrators' appraisals, what was the quality of the teachers who left? (Our study did not include teachers who retired.)

We surveyed all 432 school districts in Wisconsin and received 346 responses (80%). The questionnaire we circulated asked for the number of full-time-equivalent (FTE) teachers employed by each district for the target school years, the number of FTE teachers who resigned during those years, and the number of FTE teachers who resigned in order to leave education. We also asked the districts to compare the ability of those who resigned with that of the entire staff. Finally, we asked the district administrators to give reasons for the teachers' resignations.

Table 1 shows the number of FTE teachers who resigned, by year and by size of district. Of the 34,955 FTE teachers in 1982-83, 961 (2.8%) resigned. In 1983-84, 1,166 (3.4%) of 34,800 FTE teachers resigned. The largest percentage of those who re-

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M. GILBERT WILKINS (La Crosse Wisconsin Chapter) is director of personnel for the School District of La Crosse, Wis. ANN KORSCHGEN is director of career services at the University of Wisconsin at La Crosse.

Table 1.
Teacher Resignations, by Year and District Size

Size of District	Number of Districts	FTE Teachers Employed	Number of Resignations	Percentage of Resignations
1982-83				
0-50 teachers	143	4,526.11	193.70	4.28
51-200	169	15,834.68	439.42	2.78
More than 200	34	14,594.30	328.70	2.25
Total	346	34,955.09	961.82	2.75
1983-84				
0-50 teachers	143	4,517.50	263.13	5.82
51-200	169	15,797.28	583.02	3.69
More than 200	34	14,485.38	320.59	2.21
Total	346	34,800.16	1,166.74	3.35

Table 2.
Resigning Teachers Leaving Education, By Year and District Size

Size of District	Number of Districts	FTE Teachers Employed	Number of Resignations	Percentage of Resignations
1982-83				
0-50 teachers	143	4,526.11	67.80	1.50
51-200	169	15,834.68	150.75	0.95
More than 200	34	14,594.30	137.30	0.94
Total	346	34,955.09	355.85	1.02
1983-84				
0-50 teachers	143	4,517.50	86.82	1.92
51-200	169	15,797.28	210.05	1.33
More than 200	34	14,485.38	108.69	0.75
Total	346	34,800.16	405.56	1.17

> **We suggest that readers remain skeptical of articles purporting to describe an exodus of talent from the nation's classrooms.**

signed came from small school districts, and the smallest percentage came from large school districts. This was also true for those who resigned to leave education (Table 2).

The administrators who responded to our survey rated the teachers who left the profession as better-than-average teachers. The composite figures for administrators' ratings for the two years we surveyed were: 24.57% below average, 36.65% average, and 38.78% above average. The reasons given by administrators for teachers' leaving education were: work opportunities outside of education (34%), relocation of spouse (20%), staying home with family (20%), disciplinary understanding with employee (8%), job dissatisfaction (3%), medical reasons (3%), and unknown and miscellaneous (12%).

Our findings suggest that Wisconsin teachers have not been leaving the profession in significant numbers. Indeed, the resignation rates for the years we studied were quite low. However, those who resigned to leave the field were judged to have average or above-average teaching ability, and this does support to some degree the concern about academically able people leaving teaching. But they are leaving at such a slow rate that there appears to be ample time to take steps to address the problem.

We cannot say for certain that Wisconsin teachers are representative of teachers nationwide, and we were unable to locate any similar studies of teachers in other states. Thus we can only surmise that the phenomenon of teacher flight has not been validated by research. Until it has been validated nationally, we can only suggest that readers remain skeptical of articles purporting to describe an exodus of talent from the nation's classrooms.

"If you'd check your seating chart again, Mr. Budlong, I think you'd see you're supposed to be sitting over there."

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1. "Who Ruined the Schools?," *Wall Street Journal*, 12 May 1983, p. 24; and Nancy Cummings Perry, "New Teachers: Do 'the Best' Get Hired?," *Phi Delta Kappan*, October 1981, pp. 113-14.

2. F. Howard Nelson, "New Perspective on Teacher Quality Debate: Empirical Evidence from the National Longitudinal Survey," *Journal of Educational Research*, January/February 1985, pp. 133-40. K